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Do Tight Deadlines and Dirty Diapers Fuel or Fizzle the Next Big Thing? The Differential Effect of Work and Non-Work Stressors on Employee Creativity

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DO TIGHT DEADLINES AND DIRTY DIAPERS FUEL OR FIZZLE THE NEXT BIG THING? THE DIFFERENTIAL EFFECT OF WORK AND NON-WORK STRESSORS ON EMPLOYEE CREATIVITY

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Abstract

As our society has transitioned from an economy built on production to one built on knowledge, employee creativity has become necessary for organizations seeking to gain and maintain profits. Therefore, the focus of this dissertation was to investigate how an employee's social environment, specifically stressors from their work and non-work roles, impacts their ability to generate new ideas at work. Two independent studies were conducted. Within Study 1, the challenge-hindrance framework was integrated with the componential model of creativity (Amabile, 1983) to determine how individual factors interacted with work and non-work stressors. Although main effects were present, moderation was not found. Intrinsic motivation was found to partially mediate the relationship between challenge work stressors and creativity. In Study 2, work and non-work stressors were proposed as direct predictors of creativity in order to investigate work-family conflict and work-family enrichment as additional mechanisms that drive the relationship. Results indicated that work-related stressors positively relate to idea generation, whereas non-work stressors did not have a direct effect on creativity. However, work-to-family enrichment positively influenced creativity, indicating that non-work variables may be indirectly related and thus, additional third variables should be considered. Overall, the present dissertation bridges the gap between the creativity and work-family literatures, while providing additional insight to organizational leaders regarding the effect of work and non-work stress on employee creativity.

Introduction

Any recent web search for the phrase "employee creativity" will return a variety of popular press articles on topics ranging from creative leadership being the top characteristic of future CEOs, to harnessing the skills of your company's "intrapeneurs", to the redesign of offices to promote creativity and collaboration. Generally, there is agreement across the scientific literature that creativity is defined as the generation of ideas or products that are both novel and useful (see Amabile, 1996; Fink et al., 2010; Zhou & Shalley, 2003), and based on the articles it inspires, it is apparent that people are interested in the benefits of creativity. At the broadest level, creativity is one of the key factors that differentiates humans from other species, making it essential to human progress. As such, organizations depend on the creativity of their employees to produce new ideas, products, and processes so that productivity and profits will continue to thrive. Organizations that fail to select and retain creative people or are unable to foster a culture of innovation will likely be left behind in the pursuit for the next big thing (Meisinger, 2007; Shapiro, 2002). As such, it becomes imperative for employers to understand what is promoting versus inhibiting the creativity of employees. Existing theory and research has shown that domain-relevant skills (e.g., expertise, training), creativity-relevant skills (e.g., personality, thinking style), and intrinsic motivation are several characteristics of a person that positively contribute to creativity within the workplace, making up the intra-individual factors of the componential framework of creativity conceptualized by Amabile (1983).

However, there is a fourth component to Amabile's framework that must be considered, a person's social environment. Historically researchers have only examined the innate characteristics of a creative person while neglecting the idea that there may be situations and environments more conducive to creativity as well (Amabile, 1983). This dearth in the creativity

literature contributed to the conceptualization of the social psychology of creativity, which aims to "identify particular social and environmental conditions that can positively or negatively influence the creativity of most individuals" (Amabile, 1983, p. 5). Imagine a motivated medical researcher who has just been awarded a prestigious grant and gained a great deal of responsibility at work, but she is also a first-time mother, struggling to find a childcare provider and some sense of routine. Or consider a newly graduated and hired software programmer who shows great promise, but has moved across the country for the position and is arguing daily with his long-term girlfriend about the move. Although these people possess several key ingredients for creativity, there are a plethora of stressors in their social environment, both at work and at home, which may influence their ability to think creatively at work.

Previous research on the predictors of employee creativity has mainly considered the effects of work-related personality traits and settings (Egan, 2005; Oldham & Cummings, 1996; Shalley, Zhou & Oldham, 2004). Although the findings from these studies are pertinent to employers seeking to understand the relationship between work stressors and their employees' creativity, organizational leaders would benefit greatly from recognizing that constraints and demands from employees' larger social context could also be affecting creativity. Considering that more than 50% of Americans feel stressed by family responsibilities, relationships, and the health concerns of themselves and their loved ones (American Psychological Association, 2013), it is highly likely that in addition to work-based stressors, stressors from outside of the workplace may play a critical role in employee creativity as well. Although theory and previous research show support for the relationship between work stress and creativity (e.g. Coelho, Augusto, & Lages, 2011; Shalley et al., 2004), as well as the relationship between non-work stressors and more general work outcomes (Frone, Yardley, & Markel, 1997), these two streams of research

have yet to be integrated. Therefore, within this dissertation, I seek to address this gap in the literature by specifically examining the relationship between non-work stressors and employee creativity.

To achieve the goals of this research, two studies are proposed. Of note, given the broad definition of creativity, employee creativity is operationalized as idea generation, or the production of new ideas (Amabile, 1996; Rank, Pace, & Frese, 2004). Thus, the terms creativity and idea generation are used interchangeably throughout the dissertation. Within Study 1, the componential framework of creativity discussed above is integrated with the challenge-hindrance stressor framework, developed by LePine, Podsakoff, and LePine (2005), in order to understand when stressors from both the work and non-work domains can help or hurt idea generation. Although researchers have previously examined how various stressors relate to creativity, findings are inconsistent in that stressors have been shown to both increase (Andrews & Farris, 1972) and decrease creativity (Byron, Khazanchi, & Nazarian, 2010). Thus, it is imperative to account for this variation in the present study in order to provide a more complete picture of how work and non-work stressors relate to creativity. The challenge-hindrance stressor framework (LePine et al., 2005) has been successful in explaining the inconsistent results found in the stressor-job performance literature by separating stressors into the categories of challenge and hindrance, and thus holds explanatory potential for the criterion of creativity. Therefore, in addition to specifically studying work and non-work stressors as a part of an employee's social environment, organizational leaders will gain a deeper understanding of why certain stressors differentially affect creativity through the present research.

For Study 1, domain-relevant skills, creativity-relevant skills, and intrinsic motivation are each examined in relation to idea generation to further validate their beneficial impact (Amabile,

1983). Based on the work of LePine, LePine, and Paul (2007) as well as Michel, Kotrba, Mitchelson, Clark, and Baltes (2011), four types of stressors (i.e., work challenge, non-work challenge, work hindrance, non-work hindrance) are examined as potential moderators of the relationships between domain- and creativity-relevant skills and creativity, and predictors of the intrinsic motivation relationship. Each stressor is individually examined within each relationship to determine if challenge and hindrance stressors from work and non-work interact with the predictors of creativity differently. In doing so, Study 1 results can be used to guide future research regarding the specific stressors that should be considered further when discussing the improvement of employee creativity within organizations.

In a second study, a longitudinal methodology is implemented to expand on how stressors relate to creativity at work using the previously untested mediators of work-family conflict and enrichment. Whereas the interactive component of the social environment is tested with the componential model of creativity in Study 1, the predictive ability of work and non-work stressors from the social environment is tested in Study 2. Thus, each study offers a distinctive way to look at the relationship between role stressors and employee creativity. Within Study 2, work and non-work stressors are proposed as direct predictors of idea generation in order to investigate additional mechanisms that may be driving the relationship. Grounded in conservation of resources theory (COR; Hobfoll, 1989), work-family conflict and work-family enrichment are two such constructs. Both are bidirectional, meaning work can impact family and family can impact work. However, these constructs differ greatly in their effect on resource allocation, where resources such as as time, energy, ability, and mood may be depleted or enhanced.

Based in the role depletion perspective (Greenhaus & Beutell, 1985), work-family conflict indicates that one role is negatively interfering with the other role by requiring more physical and/or psychological resources and thus, leaves the other role with fewer. According to COR theory (Hobfoll, 1989), experiencing a threat or a loss to resources will result in an individual reducing their output in order to conserve the resources they have left. On the other hand, driven by a role accumulation perspective (Greenhaus & Powell, 2006), work-family enrichment is the extent to which participation in one role (e.g., work) positively influences the other role (e.g., family) due to the transfer of relevant skills, positive mood, or sense of achievement (i.e., resources). Challenge stressors are defined as stressors that could result in growth and achievement, thus making it possible that they are working through work-family enrichment to improve creativity. On the contrary, hindrance stressors are viewed as stressors that inhibit development and goal attainment, and thus drain an individual of resources, making it probable that work-family conflict mediates their relationship with creativity. With a smaller span of resources due to the presence of hindrance stressors, cognitive strategies may be less active, making it difficult for an individual to generate novel, creative ideas (Byron et al., 2010), compared to the potential increase in resources due to the presence of challenge stressors.

Based on this rationale, within Study 2, I first test the relationships between stressors and idea generation to see if the stressors also hold as direct predictors within the sample. Then, work-family conflict and work-family enrichment are entered into the model as mediators of these relationships to determine if they help explain why work and non-work stressors affect creativity differently. However, implicit to the proposition that work-family conflict and enrichment mediate the stressor-creativity relationship is the concurrent gain and/or loss of psychological resources. Although resource gain and resource loss are heavily cited as the reason

for changes in work and family-related constructs, it is rare for researchers to actually measure the extent to which individuals perceive a change in their resources. Therefore, as a final consideration of this research, perceived resource gain and loss are examined as a mediator within the full model. A longitudinal design strengthens confidence in the aforementioned propositions that stressors predict idea generation and not vice versa, as well as reduces the occurrence of biases resulting from purely cross-sectional research.

In summary, I seek to make several theoretical and practical contributions to the work-family and creativity literature through these two studies. In addition to further clarifying the relationship between stressors and creativity, the relatively new challenge-hindrance stressor framework is extended to the criterion of idea generation. Furthermore, both models include non-work role stressors, which provide insight into how pressure and constraints outside of work can impact creativity (LePine et al., 2007). Building on COR theory (Hobfoll, 1989), work-family conflict and work-family enrichment are proposed as mediators of work and non-work stressors and creativity, which answers the call for more research that investigates the underlying mechanisms of these relationships (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). Going a step further into COR theory, the actual perceived gain and loss of resources are tested to determine their functioning and contribution to the propositions made regarding work-family conflict and enrichment. Also addressed in the present dissertation are theoretical propositions made by LePine et al. (2007) to extend the challenge-hindrance stressor framework into the non-work domain.

In terms of practical contributions, an understanding of the relationship between work-family conflict, work-family enrichment, and creativity is introduced. In recent years, benefits thought to enhance the integration of work and non-work (e.g., telecommuting) have been

questioned by executives in regards to their true impact on organizational performance. By studying both work-to-family and family-to-work constructs in relation to creative activity, managers and organizations can have more confidence in their rationale to implement or dissolve certain policies and programs. Additionally, the focus on non-work stress provides evidence as to whether it plays an integral role in the creativity of employees and should be considered when companies make strides to improve innovation.

Overall, I seek to further contribute to the theoretical framework of creativity by studying the social environment of employees, which encompasses both work and non-work stressors, while also expanding the work-family literature by examining the criterion of creativity. Given society's transition over the past 100 years from an industrial and production-based economy to an economy of knowledge (Bell, 1976; Brint, 2001), creativity has become a necessity to an organization's human capital. By looking at the moderating effect of role stressors from the larger social context and the mediating effect of work-family conflict and enrichment on the creative ability of employees, employers may be able to benefit both employee and organizational goals by effectively managing work-family demands.

Review of Literature

Prior to the mid 20th century, creativity was largely a neglected construct in the field of psychology due to the fact that only highly creative people, such as Michelangelo and Einstein, were deemed important enough to study (Guilford, 1950). However, Guilford (1950) suggested that creativity could be examined in the everyday person by adopting the appropriate psychometric principles (Sternberg & Lubart, 1999). This distinction was later labeled "Big C" to identify the study of eminent creativity and "little c" which denotes the study of everyday creativity (Gardner, 1993), the latter being the focus of the present study. Though eminent creativity refers to occasional displays of creativity that have a large effect on society and culture, everyday creativity encompasses daily problem solving and the ability to adapt to change (Hennessey & Amabile, 2010). It is through the acknowledgement of everyday creativity that organizations are able to see the benefits of investing in human capital. Although some careers are more readily identified as creative, all workers, regardless of their level in the organizational hierarchy, have the potential to generate creative ideas if they possess some degree of expertise, creative thinking ability, and motivation, as discussed below. Therefore, the findings from both Study 1 and Study 2 should generalize to employees across industries and job categories. As such, the definition and theory of creativity must be well explicated.

A Definition and Theory of Creativity

Although broad in its definition, employee creativity contributes a great deal to an organization's innovation, effectiveness, and continued existence (Amabile, 1996). According to Amabile (1996) and largely accepted by scholars (e.g. Shalley et al., 2004; Zhou & Shalley, 2003), employee creativity represents the production of novel and useful ideas, processes, and products that benefit a company. Thus, to be considered creative, employees must generate ideas

regarding the transformation of existing materials or the creation of completely new materials, relative to what is currently being done, which would positively impact the organization in some way. This could range from simply adding another step to improve an established work protocol to inventing the company's next big product. The definition of employee creativity is relatively similar to general definitions of creativity found across the social sciences, which all promote the generation of new ideas with relative amounts of emphasis placed on the usefulness or value of these ideas (Fink et al., 2010; Ward, Patterson, & Sifonis, 2004).

For many researchers who study innovation, creativity represents the first step in a multistage process (Kanter, 1988; West & Farr, 1990), despite the words being used synonymously. Creativity turns into innovation when the ideas or products developed are actually implemented within the organization (Woodman, Sawyer, & Griffin, 1993). The innovation process can be seen at all job levels within all types of organizations, indicating that "creative work" is not limited to just those in "creative jobs" (Madjar, Oldham, & Pratt, 2002). This process begins with idea generation, usually after recognition that a problem exists, and is followed by idea promotion, where an individual works to garner support and/or adoption from others. The innovation process concludes with implementation when the idea or product is integrated throughout the organization (Holman et al., 2012). Within the following studies, I seek to specifically focus on the stage of idea generation due to how frequently and commonly it occurs across job types. Idea generation is defined as the production of new and useful ideas, which may take the form of products, processes, concepts, etc. Given the similarity in definition, the terms "idea generation" and "creativity" are used interchangeably within this paper.

Study 1: Integrating Stressors into the Componential Model of Creativity

The prevalence of creativity in the form of idea generation has been shown to depend on several factors. Both the employee and the employee's work environment play a role in the level of creativity achieved, as outlined by Amabile in the componential model of creativity (Amabile, 1983). Within this theory of creativity, four factors are necessary for idea generation. The first three are found within the individual: domain-relevant knowledge, creativity-related skills, and task motivation. The last component, the social environment, represents all possible external forces that can promote or inhibit creativity. Given that this theory has been recognized as one of the major theories of workplace creativity and been cited nearly 2,000 times in the academic literature (Kessler, 2013), within the present study, I plan to build on its previously established relationships in order to further understand the role of work and non-work stressors on employee creativity.

Domain-relevant skills encompass the basic cognitive abilities and technical knowledge needed to be successful in a field (Amabile, 1983). This component is dependent on an individual's education and training, as well as on his/her innate intellectual and perceptual abilities. Thus, it is frequently operationalized through cognitive ability tests, educational level, and years of experience (Hammond, Neff, Farr, Schwall, and Zhao, 2011). It is unlikely that a person could be creative in an area where they do not have the requisite background of knowledge. Similar to Hammond et al. (2011), I seek to replicate the positive relationship between domain-relevant skills and creativity.

Hypothesis 1a: Domain-relevant skills will be positively related to idea generation.

Yet, it is quite common for someone to be an expert in their area, but be unable to produce creative solutions or products. These individuals may lack the particular cognitive

personality or style that allows them to feel comfortable suspending set rules and performance scripts. This implicit ability to think outside the box characterizes the second component of creative performance, creativity-relevant skills. It also includes general heuristics for idea generation and a work style that promotes creative thinking (c.f. Shalley et al., 2004). Previous research on the creative personality, which characterizes much of the creativity literature to date, contributes to the model through this factor. Thus, the following hypothesis is in line with previous meta-analytic work by Hammond et al. (2011).

Hypothesis 1b: Creativity-relevant skills will be positively related to idea generation.

However, even the most creative minds struggle to produce at times. In addition to possessing domain-specific knowledge and creative thinking skills, one must also have intrinsic motivation, a feeling of action created by the task's implicit characteristics. As such, one may conclude that intrinsic motivation is a key factor in the componential framework creativity, differentiating between what a person is capable of doing (domain- and creativity-related skills) versus what he or she chooses to do (intrinsic motivation; Amabile, 1983). Subsequent researchers have adopted Amabile's "intrinsic motivation hypothesis" into their theories and models of creativity (Runco & Chand, 1995; Woodman & Schoenfeldt, 1989), indicating that most modern theories recognize the function of motivation, specifically intrinsic motivation, within creativity (Collins & Amabile, 1999). This has been supported in previous research and thus is hypothesized to be replicated here (Hammond et al., 2011).

Hypothesis 1c: Intrinsic motivation will be positively related to idea generation.

The Inconclusive Effect of Stress. It appears that individuals who possess higher levels of all three components of Amabile's framework (1983) should be successful in generating novel and useful ideas to benefit their organization. However, despite the level of expertise, creative

personality, and motivation, external supports or demands that originate from the social environment also affect the generation of ideas (Amabile, 1996). Amabile speaks to this when she points out that historically researchers have only examined the innate characteristics of a creative person while neglecting the idea that there may be situations and environments conducive to creativity as well (Amabile, 1983). One's workplace is one of the most salient social environments in which one can apply the social psychology of creativity (Hennessey & Amabile, 2010), where it is estimated that individuals spend a quarter of their lives (Warr & Clapperton, 2010). Although many external resources have been identified as positive predictors of creativity (e.g., supervisor support, diverse work teams, autonomy; Amabile, 2012; Hammond et al., 2011), the influence of stress and the stressors that precede it are not well understood within the componential model of creativity.

According to distraction arousal theory (Teichner, Arees, & Reilly, 1963), stressors are expected to decrease creativity by distracting an employee from the task at hand and/or increasing their arousal to a point where performance is negatively affected. Kahneman (1973) also supports the negative effect of stress on creativity through resource theory, which suggests that individuals only have a limited amount of mental resources that can be allocated across tasks. Thus, when stressors are presented, attentional conflict between tasks results in the draining of cognitive resources. By attending to external stressors or distractions, an individual is less able to accomplish the task at hand. In terms of creativity, distractions may limit cognitive capabilities or motivation, resulting in a person using simpler, more routine solutions as opposed to producing more novel ideas (Baron, 1986; Drwal, 1973).

However, research also supports the proposition that stressors can promote creativity by increasing arousal, which may lead to more creative thought processes and enhanced problem-

solving (e.g., Anderson, De Dreu, & Nijstad, 2004; Bunce & West, 1994). In a recent meta-analysis of experimental studies, Byron et al. (2010) investigated the conflicting arguments about stressors, finding that the effect stressors have on creativity is mainly a function of the type of stressor and how stress-inducing it is perceived to be. Thus, in order to effectively study creativity in relation to its antecedents, stressors from both the work and non-work domain must be carefully categorized into groups that similarly affect the criterion.

Challenge-Hindrance Stressor Framework. Looking at the job performance literature, we find stressors share a similar inconsistent relationship with performance as with creativity (Jex, 1998). Given the prominence of the criterion of job performance for both conceptual and practical reasons, researchers have made strides in identifying and conceptualizing a stressor-performance framework that provides rationale for the historically varying effects of stressors. For example, time pressure, defined as the extent to which a person feels they have enough time to finish their work tasks, is one of the most common job stressors studied in relation to performance (Hennessey & Amabile, 2010). Yet, research has shown that time pressure is not always detrimental (e.g. Andrews & Farris, 1972; Ohly & Fritz, 2010) and might result in a person working harder or smarter. The distinction between stressors considered to be challenging and stressors seen as threatening was first established in the theory of cognitive appraisal (Lazarus & Folkman, 1984). Although the differentiation of good stress (eustress) and bad stress (distress) dates back to the late 1970s and early 1980s (Selye, 1976, 1982), only recently has this dichotomy been used to help researchers understand the variable effects of stressors on performance outcomes.

Challenge stressors are considered “good” stressors, and are evaluated by employees as demands that if overcome will result in personal or professional gains, i.e., knowledge, growth,

and achievement. Although they produce strain as stressors do, challenge stressors relate to increased motivation and coping strategies, which is why they have a positive effect on work-related outcomes (LePine et al., 2005; Edwards, Franco-Watkins, Cullen, Howell, & Acuff, 2014). In addition to time pressure, workload and high responsibility are also considered challenge stressors based on previous research. On the contrary, stressors that prevent personal and/or professional growth and goal attainment are considered hindrance stressors. Some primary examples of hindrance stressors are role overload, role conflict, and organizational politics. Although perceptions of stressors can vary from person to person, the general categorization of stressors as challenge or hindrance is based on the assumption that individuals share a fairly consistent view of the work context, meaning they will interpret and respond to stressors in similar ways (Brief & George, 1995; LePine et al., 2005). Empirical support was demonstrated for this rationale by Cavanaugh, Boswell, Roehling, and Boudreau (2000). Additionally, LePine et al. (2005) found support for this two-dimensional stressor framework at work with challenge stressors positively relating to performance and hindrance stressors negatively relating to performance. So although the distinction between good stress and bad stress has been around for several decades, its differential effect on performance has only recently been realized and contributes to a stronger theoretical model of the stressor-performance relationship (LePine et al., 2005).

Since LePine et al.'s original meta-analysis on performance (2005), the challenge–hindrance stressor framework has also been examined in relation to retention-related outcomes (Podsakoff, LePine, & LePine, 2007) as well as discretionary types of performance (i.e., organizational citizenship behaviors; Rodell & Judge, 2009). In line with their hypotheses, challenge stressors were found to positively relate to job satisfaction and organizational

commitment, which resulted in fewer turnover intentions and behavior; hindrance stressors also significantly influenced these criteria, but negatively (Podsakoff et al., 2007). In terms of discretionary work behaviors, challenge stressors had an overall positive relationship with organizational citizenship behaviors and a negative relationship with counterproductive work behaviors, with attentiveness and anxiety mediating the relationships. Hindrance stressors also behaved in an expected fashion, indirectly reducing organizational citizenship behaviors through the mechanism of anxiety, and increasing counterproductive work behaviors, both directly and indirectly, through anger and anxiety (Rodell & Judge, 2009). As suggested by Podsakoff et al. (2007), the continued validation of this framework with other criteria remains worthwhile.

Accordingly, given the success of the challenge-hindrance stressor model in highlighting differential relationships with job performance, as well as with withdrawal and discretionary work behaviors, our understanding of how stressors affect employee creativity should also improve through the application of this framework. Support for the extension of the challenge-hindrance stressor framework to creativity using work role stressors (e.g., time pressure) has been initiated by Binnewies and Wornlein (2011) and Sacramento, Fay, and West (2013). However, what has yet to be investigated in both literatures is the effect of non-work stressors on creativity.

Investigation of Non-Work Role Stressors. Although I seek to apply the challenge-hindrance stressor framework to further understand the effect of certain work stressors on creativity, the impact of non-work stressors should also be considered in this way. Compared to the work role stress literature, general non-work role stress has received limited attention in regards to its cross-domain influence on work role performance (Campbell, Campbell, & Kennard, 1994). Given the increase in dual earning couples, as well as the prevalence of

childcare and eldercare duties (Allen, Herst, Bruck & Sutton, 2000; Bond, Galinsky & Swanberg, 1998), employees are more likely than ever to experience stress in their home and non-work life, which could potentially interfere with work outcomes. A recent study shows that 50% of Americans feel stressed by family responsibilities, relationships, health problems that affect their family, and personal health concerns, all of which originate in the non-work domain, but are likely to permeate into work (American Psychological Association, 2012). Previous research has shown that family distress, family overload, and family time commitments indirectly affect work performance (Frone, Yardley, & Markel, 1997). Additionally, Edwards and Rothbard (2000) proposed a theoretical model where stress from the home domain makes it harder for an individual to keep up with work demands and maintain job performance. Similar to resource theory (Kahneman, 1973), these findings are based on conservation of resources theory (COR), which suggests that individuals have a finite amount of resources (e.g., time, attention, energy, money) and thus, are constantly trying to gain and maintain resources, in addition to avoiding resource loss, as a way to minimize stress and strain (Hobfoll, 1989).

Although research on the relationship between non-work stressors and creativity is very limited, Van Dyne et al. (2002) did find that home strain negatively impacted creativity at work, whereas work strain had no effect. They concluded that employee creativity might be more sensitive to home strain, suggesting that home strain reduces resources, restricts attention span (Baron, 1986), and limits an employee's ability to develop and integrate alternatives (Farr & Ford, 1990). The measure of home strain used by Van Dyne et al. (2002) aligns closely with scales typically measuring role conflict, just one of many identified hindrance stressors (LePine et al., 2007). Therefore, it is possible that, similar to work stressors, non-work stressors may have a differential impact on creativity. LePine et al. (2007) proposed the extension of the challenge-

hindrance stressor framework to the non-work domain based on previous empirical findings (Aryee, Srinivas, & Tan, 2005; Carlson & Perrewe´, 1999; Parasuraman, Purohit, Godshalk, & Beutell, 1996) and the applicability of stress appraisal process to roles outside of work (Lazurus & Folkman, 1984).

Challenge Stressors and the Componential Model. Although theoretical and empirical support exists for the classification of non-work role stressors as a hindrance to creativity, the question remains as to whether stressors from the home represent enough of a challenge to increase idea generation as work role stressors have been shown to do. Given that time pressure and role demand are prototypical challenge stressors within the work role (LePine et al., 2007; Michel et al., 2011), it is also suggested that non-work time pressure and non-work role demand represent challenge stressors within the non-work domain. Time pressure is described as the feeling of limited time, either subjectively perceived or due to a deadline (Amabile et al., 2002). For example, employees at a newspaper may feel constant time pressure to get a paper to press each day, while a parent may feel crunched for time trying to get children to various extracurricular activities on time. Role demand is defined as an individual's perception of his or her overall responsibilities in that role (Boyar, Carr, Mosley, Jr., & Carson, 2007). This may be seen as a relentlessly full e-mail inbox at work or the constant care of a mentally handicapped relative outside of work. Both time pressure and role demand, as challenge stressors, are likely to cause strain, but produce rewarding outcomes and experiences in their given domain (LePine et al., 2005). The resulting effect and increased effort from experiencing challenge stressors may positively influence an employee's work outcomes, one being the production of original and worthwhile ideas (LePine et al., 2007). Therefore, it is proposed that challenge stressors from the work and non-work roles, operationalized through time pressure and role demand, interact with

the components of creativity to enhance idea generation. In other words, employees who report higher amounts of time pressure and role demand experience a stronger positive relationship between domain-relevant skills and creativity-relevant skills compared to employees with lower levels of challenge stressors.

Hypothesis 2a: Work role and non-work role challenge stressors will interact with an individual's domain-relevant skills to increase idea generation, where individuals who report higher amounts of time pressure and role demand will experience a stronger positive relationship between their domain-relevant skills and idea generation.

Hypothesis 2b: Work role and non-work role challenge stressors will interact with an individual's creativity-relevant skills to increase idea generation, where individuals who report higher amounts of time pressure and role demand will experience a stronger positive relationship between their creativity-relevant skills and idea generation

Based on further theorizing by Amabile (1983), the influence of stressors may affect task motivation more directly and result in mediation as opposed to an interaction with domain- and creativity-relevant skills. By recognizing that a person's motivation is more affected by social and environment constraints due to its state-like nature, compared to domain- and creativity-relevant skills, which are more temporally stable, the "intrinsic motivation principle of creativity" was established (Amabile, 1983). This principle places intrinsic motivation as a mediating variable affecting the relationship between stressors and creativity. When an employee experiences a constraint, such as work overload, they might feel overwhelmed and controlled by their environment. As a result, they will feel less motivated by the work itself and less excited to engage in it. Consequently, this dip in intrinsic motivation makes employees less likely to think creatively, instead reverting to their familiar and routine processes.

In previous research, support for the relationship between intrinsic motivation and various measures of creativity has been found, verifying this portion of the componential model of creativity (Amabile, 1985; Amabile, Hill, Hennessey, & Tighe, 1994). The specific "intrinsic motivation principle" has also been seen in past studies, which manipulate the level of external constraint to see if a drop in intrinsic motivation occurs (Amabile, DeJong, & Lepper, 1976; Koestner, Ryan, Bernieri, & Holt, 1984; Amabile, Goldfarb, & Brackfield, 1990). However, the mediational relationship is still unconfirmed. Interestingly, time pressure, a challenge stressor in the present study, was found to have a negative direct effect on creative cognitive processing (Amabile et al., 2002). This is contrary to what would be expected based on the challenge-hindrance stressor framework. Although the indirect effect through intrinsic motivation was not supported, time pressure had an unexpected positive impact on intrinsic motivation, which was attributed to the work culture by the authors, but supports the categorization of time pressure as a challenge stressor. Thus, the mediating effect of intrinsic motivation on the stressor-creativity relationship warrants more examination, and would benefit from the inclusion of additional constraints.

Hypothesis 2c: Work role and non-work role challenge stressors will positively relate to idea generation through the mediator of intrinsic motivation. Challenge stressors will increase motivation, which will increase idea generation.

Hindrance Stressors and the Componential Model. In terms of hindrance stressors, role conflict and role overload are well established within the work stressor literature as being detrimental to job performance, job satisfaction, and organizational commitment (Gilboa, Shirom, Fried, & Cooper, 2008; Podsakoff et al., 2007). Role conflict has been defined as the extent to which an individual experiences incompatible role pressures at work or in their personal life

(Beehr, 1995; Kahn, Wolfe, Quinn, Snoek, and Rosenthal, 1964; Kopelman, Greenhaus, & Connolly, 1983). For example, a supervisor may be pressured by his/her boss to improve sales, while his/her subordinates are constantly complaining they are already overworked. In the family domain, individuals in the sandwich generation likely experience family role conflict as they struggle to attend to the needs of their elderly parents while also trying to parent their own children. The perception of having too many work role or non-work role tasks and not enough time to accomplish them all is termed role overload (Bacharach, Bamberger, & Conley, 1990; Kahn, 1980). At work, this may take the form of too many meetings and projects, or an unending list of errands and chores to accomplish at home. Nonetheless, both role conflict and role overload are seen as demands that are limiting to personal growth and achievement within a given role, as well as constraints that are likely to inhibit employees from idea generation.

Thus, it is hypothesized that experiencing work and non-work hindrance stressors (operationalized through role conflict and role overload) significantly affects the componential model of creativity. For domain- and creativity-relevant skills, a higher level of hindrance stressors reduces the relationship between these two components and idea generation compared to lower levels of hindrance stressors. Of the three individual-based factors, intrinsic motivation is proposed to be most directly affected by external stressors from work and non-work (Amabile, 2012). Therefore, intrinsic motivation serves as an underlying mechanism to explain the relationship between hindrance stressors and idea generation.

> *Hypothesis 3a*: Work role and non-work role hindrance stressors will interact with an individual's domain-relevant skills to decrease idea generation, where individuals who report higher amounts of role conflict and role overload will experience a weaker positive relationship between their domain-relevant skills and idea generation.

Hypothesis 3b: Work role and non-work role hindrance stressors will interact with an individual's creativity-relevant skills to decrease idea generation, where individuals who report higher amounts of role conflict and role overload will experience a weaker positive relationship between their creativity-relevant skills and idea generation.

Hypothesis 3c: Work role and non-work role hindrance stressors will negatively relate to idea generation through the mediator of intrinsic motivation. Hindrance stressors will decrease motivation, which will decrease idea generation.

Study 2: The Underlying Mechanisms of the Stressor-Creativity Relationship

The examination of the effect of work and non-work role stressors on creativity continues within Study 2 through a series of mediational relationships using a longitudinal design. Although the relationship between challenge and hindrance stressors and idea generation have already been tested through the mechanism of intrinsic motivation, it is possible that there are other constructs that may mediate the relationship as well. In addition to a reduction in intrinsic motivation, individuals are likely to experience work-family conflict or work-family enrichment as a result of stressors from work and non-work. Based on COR theory (Hobfoll, 1989), the benefits and/or strain of work and non-work roles interacting are likely to impact an employee's creativity, but empirical support for this is lacking. Thus, while Study 1 is expected to show that both work and non-work stressors may improve or inhibit creativity, *how* those stressors have such an impact will continue to be investigated through the introduction of two work-family constructs in Study 2. Furthermore, the causality of these relationships will be investigated through longitudinal methodology in additional to the cross-sectional approach, the latter of which has been shown to make up 89% of work-family studies (Casper, Eby, Bordeaux, Lockwood, & Lambert, 2007). By assessing the focal constructs at two time points, stronger

conclusions can be drawn regarding the true relationship between the four types of stressors, work-family conflict, work-family enrichment, and idea generation. Thus, within the first hypothesis of Study 2, I examine challenge and hindrance stressors from the work and non-work domain as direct predictors of creativity in order to validate potential findings from Study 1 and examine the relationship longitudinally.

Hypothesis 4a: Challenge stressors from both work and non-work roles will positively relate to idea generation

Hypothesis 4b: Hindrance stressors from both work and non-work roles will negatively relate to idea generation.

Mediators of the Challenge-Hindrance Stressor Framework. Given the differential effect that challenge stressors and hindrance stressors have on the outcome of idea generation as proposed in Study 1, it is likely that they are functioning through two separate mechanisms. Based in the work-family literature, work-family conflict and work-family enrichment represent alternative perspectives on how demands from one domain can impact the outcomes in the other. Work-family conflict represents the occurrence of demands from the work domain adversely interfering with the family domain (work-to-family conflict; WFC) and the occurrence of demands from the family domain adversely interfering with the work domain (family-to-work conflict; FWC; Greenhaus & Beutell, 1985). Whereas the concept of work-family enrichment is relatively new, research on the topic of work-family conflict has expanded immensely over the past few decades due to the changing workforce and workplace. The influx of women into the workforce and the related growth of dual-income couples, in addition to technology that allows work to occur almost anywhere at almost any time has contributed to a desire to better understand work-family conflict (Hammer, Kossek, Yragui, Bodner, & Hanson, 2009; Kossek &

Lambert, 2005; Neal & Hammer, 2007). Work-family conflict is often attributed to resource scarcity or role depletion theories, such as conservation of resources (Hobfoll, 1989). These perspectives on managing multiple roles ascertain that an individual has only a finite amount of physical and psychological resources to expend. Thus, when demands from one domain (i.e., family) require more resources, there are fewer available for other domains (i.e., work; Edwards & Rothbard, 2001; LePine et al., 2005). As such, the latter domain will be negatively affected by the loss of resources.

In previous research, role stressors, such as overload and role conflict, have been shown to increase work-family conflict (Mesmer-Magnus & Viswesvaran, 2005; Michel et al., 2011). However, this set of relationships has yet to be tested within the challenge-hindrance stressor framework. Therefore, similar to past studies and meta-analyses, it is expected that the hindrance stressors of role overload and role conflict will positively relate to work-family conflict due to a tendency to detract from physical and psychological resources.

Hypothesis 5a: Work role hindrance stressors will positively relate to work-to-family conflict.

Hypothesis 5b: Non-work role hindrance stressors will positively relate to family-to-work conflict.

Whereas theoretical and empirical support exists for the relationship between hindrance stressors and work-family conflict, the connection between challenge stressors and the construct of work-family enrichment represents a relatively new piece of the work-family literature that warrants increased attention. Rather than conceptualizing the interaction of work and non-work roles as a negative occurrence, scholars of work-family enrichment define it as "the extent to which experiences in one role improve the quality of life in the other role" (Greenhaus & Powell,

2006, p. 73). As opposed to thinking of stressors as a drain on resources, work-family enrichment has its foundation in expansionist theory (Barnett & Baruch, 1985), which supports the idea that involvement in multiple roles leads to positive outcomes. The role accumulation perspective from which work-family enrichment is derived suggests that when individuals cope with stressful demands within one role, they are gaining resources (e.g., skills, flexibility, social capital, psychological resources) that will help them meet the demands within other roles (LePine et al., 2005).

According to Greenhaus and Powell (2006), the demands or stressors of work can enrich the non-work domain via instrumental and affective pathways. Within the instrumental pathway, the skills or resources generated in one role (work) can have a direct effect on performance in another role (family). For example, the leadership skills developed through a complex job may help an individual's parenting style (Greenhaus & Powell, 2006) or the patience and multitasking ability required of working mothers leads to enhance managerial effectiveness (Ruderman, Ohlott, Panzer, & King, 2002). On the other hand, participation in one role (work) may produce more positive affect in that role which then carries over into the feelings and performance of the other role (family), thus describing the affective path of work-family enrichment (Greenhaus & Powell, 2006). The availability of support and flexibility within the organization has been shown to relate to positive feelings about one's career (Friedman & Greenhaus, 2000) in addition to financial rewards (Judge, Cable, Boudreau, & Bretz, 1995). The generation of this positive affect in the work role leads to increased performance in the non-work role due to enhanced psychological availability, attention, and energy (Isen & Baron, 1991; Marks, 1977; Rothbard, 2001).

Although the challenge stressors of time pressure and role demand are not explicitly mentioned in the work-family enrichment model proposed by Greenhaus and Powell (2006), challenge stressors are thought to promote feelings of development and achievement, which would manifest as a resource within a given domain. Therefore, it is possible that challenge stressors from the work domain can enrich individuals' family lives and vice versa (Carlson, Kacmar, Wayne, & Grzywacz, 2006). Although this has not been specifically examined, Grzywacz and Butler (2005) found support for job complexity, a type of work challenge stressor, positively influencing family through work-to-family facilitation, suggesting that work-family enrichment can result from challenge stressors. Interestingly, in the study, individuals with jobs identified as more physically and environmentally demanding also reported more work-to-family positive spillover, which is counterintuitive to the traditional stress perspective, but aligns with the challenge-hindrance stressor framework. Thus, the following hypotheses are proposed to investigate the relationship between challenge stressors and work-family enrichment.

Hypothesis 6a: Work role challenge stressors will positively relate to work-to-family enrichment.

Hypothesis 6b: Non-work role challenge stressors will positively relate to family-to-work enrichment.

Although previous research has found support for work and non-work role stressors as antecedents to work-family conflict and enrichment, the direct effect that work-family conflict and work-family enrichment may have on creativity is relatively unexplored. By looking at how job performance is influenced by work-family conflict and work-family enrichment, we can begin to build support for extrapolating the effect to creativity. Past studies show an overall negative effect on both self-rated and manager-rated performance due to work-family conflict

(Hoobler, Hu, & Wilson, 2010). These findings are based in COR theory (Hobfoll, 1989), which as previously mentioned, suggests that individuals are constantly trying to gain and maintain a limited supply of resources, in addition to avoiding resource loss, as a way to minimize stress and strain. Given that work-family conflict represents a strain on an individual that requires additional resources in one domain (e.g., family) to address the stressor, fewer resources will be available to perform in the other domain (e.g., work; Frone et al., 1992). The reduction in job performance due to scarcity of resources as a result of work-to-family and family-to-work conflict has been examined in several meta-analyses (Gilboa et al., 2008; Hoobler et al., 2010). Frone, Russell, and Cooper (1992) argued that conflict between work and family roles would negatively affect the domain from which resources are drawn. Thus, work-to-family conflict will adversely impact family-related outcomes (i.e., family satisfaction; see Ford, Heinen, & Langkamer, 2007) due to work demands drawing resources away from the family role, and family-to-work conflict would reduce work-related outcomes (i.e., job satisfaction & work performance; see Ford et al., 2007) as the family domain requires increased attention.

However, many studies have found work-to-family conflict can also negatively impact job performance due to the fact that juggling both roles results in overall resource loss, making optimal work performance difficult to achieve (Grandey & Cropanzano, 1999; Hoobler et al., 2010). This would correspond with the source attribution perspective (e.g., Amstad, Meier, Fasel, Elfering, & Semmer, 2011; Grandey, Cordeiro, & Crouter, 2005). Individuals who see that work stressors are interfering with their family responsibilities may begin to feel negatively about their work, resulting in lower performance. Although differing arguments exist for why work-family conflict influences work performance, theoretical and empirical support exists for the relationship through COR theory and meta-analytic studies. Both directions of work-family

conflict create a sense of resource scarcity, which for some individuals results in lower job performance, and in the context of this study, idea generation.

Hypothesis 7a: Work-to-family conflict negatively relates to idea generation.

Hypothesis 7b: Family-to-work conflict negatively relates to idea generation.

On the other hand, studies of work-family enrichment have found that the interaction of work and non-work roles can actually have positive effect on work outcomes, specifically job performance. Carlson, Kacmar, Zivnuska, Ferguson, and Whitten (2011) found that work-family enrichment improves performance through the mediators of positive mood and job satisfaction. Similarly, work-family enrichment also relates to organizational citizenship behaviors, which are activities that employees engage in voluntarily which benefit the company (Bhargava & Baral, 2009). Rather than a loss of resources inhibiting work outcomes as in work-family conflict, the positive mood, sense of accomplishment, and skills gained from one domain increase resources that benefit individuals in their other roles. This assumption is supported by affective events theory (AET; Weiss & Cropanzano, 1996) and resource accumulation theories (Greenhaus & Powell, 2006; Marks, 1977). Although there is limited research on the relationship between work-family enrichment and creativity, the positive impact on performance-based outcomes provides support for the examination of creativity as an additional criterion within the work-family interface. As employees feel a sense of fulfillment or happiness due to participation in their work and/or family roles, they become more likely to transfer these positive feelings into their work, specifically the generation of new ideas. Thus, the following hypotheses are proposed.

Hypothesis 8a: Work-to-family enrichment positively relates to idea generation.

Hypothesis 8b: Family-to-work enrichment positively relates to idea generation.

Testing the Theory of Resource Gain and Loss. Although resource gain and resource loss are heavily cited as the reason for changes in work and family-related outcomes, it is rare for researchers to actually measure the extent to which role stressors, in addition to work-family enrichment and work-family conflict, result in an increase or decrease to resources. As such, a final consideration in the relationships between role stressors, work-family constructs, and creativity is the mediator of perceived resource gain and resource loss. Considering the frequency of which COR theory (Hobfoll, 1989) is cited as a theoretical framework within the work-family interface, it is surprising that most authors simply infer the gain or loss of resources instead of actually testing it within their model (Chen & Powell, 2012). This is especially concerning since work-family research has often been criticized for lacking theory development and testing (Eby et al., 2005). The lack of assessment calls into question whether role stressors will have an effect on the interaction between work and family through a change in resources. Additionally, the change in resources as a result of work-family conflict or enrichment should also be examined as the reason for more positive or negative work outcomes. Thus, it becomes necessary to test these relationships especially when attempting to extend theory to new criterion, i.e., employee creativity. Furthermore, work-family literature would benefit from further exploration into how and why particular constructs relate, a call for more mediational, process models (Eby et al., 2005). Through the following research questions, the underlying resource gain and loss frequently alluded to in studies of role stressors and work-family constructs will be assessed and examined so that more specific actions can be taken in future research and practice.

Research Question 1: Will perceived resource gain mediate the relationship between challenge stressors and work-family enrichment, as well as work-family enrichment and idea generation?

Research Question 2: Will perceived resource loss mediate the relationship between hindrance stressors and work-family conflict, as well as work-family conflict and idea generation?

Methods

Study 1: Participants and Procedures

Participants for Study 1 were 324 individuals recruited through Amazon.com's Mechanical Turk (MTurk). MTurk is an online marketplace that allows researchers, or task creators, to recruit workers from a pool of over 100,000 users to complete tasks that can be done at a computer (i.e., surveys, experiments, writing, etc). Researchers have found the quality of data obtained through MTurk to meet or exceed psychometric standards and see the tool as becoming much more prevalent in future research (Buhrmester, Kwang, & Gosling, 2011). However, to ensure data quality in the present study (Buhrmester et al., 2011; Casler, Bickel, & Hackett, 2013; Goodman, Cryder, & Cheema, 2013), only U.S. participants with a 96% approval rate (i.e., 96% of their prior tasks had been approved) and who have previously completed at least 1,000 tasks were allowed to participate. Respondents were also required to be organizationally employed for at least 30 hours a week (M = 41.16, SD = 4.81) and at least 18 years old (M = 35.65, SD = 10.34)

Data were obtained through a web-based survey posted on MTurk. Respondents, who completed the survey and were not excluded for the subsequent reasons, were paid $1.50 (N = 358). Four validation questions were embedded to ensure effortful responding (e.g., "Answer this question by indicating strongly agree" and "Leave this question blank"). Three respondents who failed to correctly complete at least 3 of the 4 questions were excluded, as well as 2 individuals who finished in less than half the proposed time. An additional 24 respondents were removed for not meeting the work hour requirement, resulting in a final sample size of 324.

Survey respondents were 57% male. The majority held a bachelor's degree (40%), but 23.5% reported having some college education but no degree and 11% had a Master's degree.

The average job tenure was 5.30 years (*SD* = 4.61) and the average organizational tenure was 6.16 years (*SD* = 4.97). Almost half of respondents were married (45.8%), while 23.2% reported being single, 14.2% were cohabitating, and 7.7% were in a long-term relationship, but not living together. Forty-nine percent of participants were parents of at least one child and 40.2% had children under the age of 18.

Study 1: Measures

Idea Generation. Idea generation (α = .93) was assessed with three items from Holman et al. (2012) and an additional two items developed by Binnewies and Gromer (2012; see Appendix A). Responses were on a 5-point scale (1 = not true at all, to 5 = very true). A sample item is "I find new ways to accomplish my work."

Domain-Relevant Skills. Domain-relevant skills were assessed using the participant's organizational tenure (number of years the respondent has spent at their current organization). This variable has been used as a predictor of creativity in Hammond et al. (2011) and as a control variable in creativity-related studies (e.g., Kark & Carmeli, 2009; Tierney & Farmer, 2004).

Creativity-Relevant Skills. The creativity-relevant skills of a respondent were assessed through 30 items from the Creative Personality Scale (CPS; Gough, 1979; see Appendix A). Respondents were asked to mark each adjective that they felt described them. As outlined by Gough (1979), adjectives that describe creative people will be given +1 and adjectives that describe less creative people will be given a -1.

Intrinsic Motivation. A respondent's intrinsic motivation (α = .90) was assessed using 3 items from the *work extrinsic and intrinsic motivation scale* (WEIMS; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009; see Appendix A). Responses were on a 7-point scale (1 = Does not correspond at all, to 7 = Corresponds exactly) following the prompt, "Using the scale

below, please indicate to what extent each of the following items corresponds to the reasons why you are presently involved in your work." A sample item includes, "Because I derive much pleasure from learning new things."

Time Pressure. The challenge stressor of time pressure was assessed for both work and non-work roles using a single item adapted from the time pressure scale developed by Andrews and Farris (1972; see Appendix A). Respondents were asked how much time pressure they felt from each domain over the past month on a 5-point scale, ranging from 1 = relaxed, no pressure at all, to 5 = extreme pressure, I always feel behind.

Role Demand. The challenge stressor of role demand was assessed with five items from the *perceived work demand* scale (α = .91) and five items adapted from the *perceived family demand* scale (α = .87; Boyar et al., 2007; see Appendix A). Responses were on 5-point (1 = strongly disagree, to 5 = strongly agree). A sample item from the *perceived work demand* scale is "My work requires a lot from me", and a sample item from the *perceived family demand* scale is "I have a lot of responsibility in my family."

Role Conflict. The hindrance stressor of role conflict was assessed through three items from the scale developed by Rizzo, House, and Lirtzman (1970; see Appendix A). Respondents were asked to think about their agreement with the items in regards to their work role (α = .80) and again in regards to their family or non-work roles (α = .80). Responses were on a 5-point (1 = strongly disagree, to 5 = strongly agree). A sample item includes "I receive incompatible requests from two or more people."

Role Overload. The hindrance stressor of role overload was assessed with five items adapted from Reilly (1982) by Thiagarajan, Chakrabarty, and Taylor (2006; see Appendix A). Respondents were asked to indicate how often they felt role overload in their work (α = .92) and

again in their non-work roles (α = .93). Responses were on a 7-point scale (1 = never, to 7 = always). A sample item is "I have to do things I do not really have the time or energy for."

Study 2: Participants and Procedures

Participants for Study 2 were 228 individuals from one of three samples of employees. Participants were recruited via solicitation to their email address and data were obtained by asking participants to complete a web-based survey provided through the email. Survey Monkey was used to create the survey, as well as to communicate with participants, and collect responses. Although all samples received the survey through email, the means through which this happened varied, as discussed below. By sampling from a variety of organizations, generalizability can be improved in addition to ensuring an adequate sample size for analyses. As an incentive to participate, survey respondents who completed the survey at both time points were sent an executive summary of the findings, and were entered into a raffle for one of five $25 Amazon gift cards.

Sample 1. 310 email invitations were sent to corporate employees of an international for-profit work-family benefits provider. A human resources manager and a senior director of training and development, both within the organization, sent out the email invitation with the embedded survey link, as well as a survey reminder email a week later, to their respective business units. The response rate for Sample 1 was 29% with 91 employees taking the survey.

Sample 2. Employees from a medical research facility made up the second sample. This organization required the email invitation and email reminder to be sent out to employees by a member of their Institutional Review Board. This person reported that approximately 700 people received the email invitation. One hundred employees took the survey, for a response rate of 14%.

Sample 3. The final sample was a sampling of staff from seven randomly selected and regionally diverse U.S. universities. Email addresses of 874 university staff were randomly collected through university website directories and sent email invitations with the embedded survey link through Survey Monkey. The survey was taken by 103 university staff members for a response rate of 12%.

As a result of sampling from these three groups, 294 individuals took the survey. However, 55 respondents were removed from analyses due to missing data. Additionally, respondents were required to work at least 30 hours a week (M = 44.05, SD = 7.14) and be at least 18 years old (M = 39.40, SD = 11.50). Eleven people did not meet these requirements and were also removed, resulting in 228 respondents. Survey respondents were majority female (81%). Most held a bachelor's degree (36%), but 29% reported having a Master's degree and 14% having higher than a Master's degree. The average job tenure was 4.02 years (SD = 4.90) and the average organizational tenure was 7.16 years (SD = 7.66). More than half of respondents were married (60.4%), while 15.9% reported being single, 9.7% were cohabitating, and 6.6% were in a long-term relationship, but not living together. Fifty-four percent of participants were parents of at least one child while 36.1% had children under the age of 18.

Time 2 Data. Study 2 was proposed as a longitudinal panel study with participants receiving an initial web-based survey consisting of demographic questions and construct items at Time 1 (T1) and a second web-based survey with construct items one month later at Time 2 (T2). Of the T1 respondents, 82% offered to participate in the T2 survey (186 people). To ensure no statistical differences existed between T1 and T2 volunteers, a one-way ANOVA was conducted for each focal construct. No significant differences were found. However, significant demographic differences did exist between T1 and T2 volunteers (see Table 1). People who

opted out of the T2 survey were older and had been at their jobs and organizations longer. The T2 survey was emailed to the T2 volunteers approximately one month after the T1 survey, and a reminder email was sent one week later. Seventy-six respondents took the T2 survey, a response rate of 40%, but 7 were removed because of inadequate work hours and 4 reported they had changed jobs in the last month. Thus, the T2 sample consisted of 65 respondents. Similar to T1, the sample was mostly female (80%) and the average age was 36 years old. Respondents had been employed at their organization for an average of 5.80 years and the majority held a bachelor's degree or higher (88%). The majority of T2 respondents were married (59%), but only 43% had children.

Table 1. Demographic Differences between T2 Volunteers and Non-volunteers

	T2 Volunteers (N = 155-176)		T2 Non-Volunteers (N = 45-52)			
Variables	Mean	SD	Mean	SD	F	Eta^2
Gender	1.18	.38	1.23	.43	.75	
Age	38.13	10.78	44.06	12.92	10.48**	.05
Job Tenure (in months)	41.57	48.27	71.511	82.18	9.44**	.05
Organizational Tenure (in months)	78.95	90.42	110.37	93.72	4.25*	.02
Education	5.08	1.37	5.29	1.32	.95	
Relationship Status	3.08	1.11	3.20	1.06	.44	
Work Hours	43.62	6.88	45.52	7.84	2.88^	

Note. N = 199 - 227. ^p < .10;*p < .05; **p < .01

Based on attrition analyses, respondents who chose not to take the T2 survey (despite volunteering previously) were not significantly different on any of the T1 measures compared to those who did take the T2 survey. In terms of demographic differences, T2 participants were significantly younger and more educated than respondents who only completed T1. Despite the average response rate, the sample of 65 survey respondents is low for the number and type of analyses planned and could result in Type II error. However, the repeated measures design is likely to provide some insight into the proposed relationships. Thus, many of the planned

regressions will be run with T1 and T2 data to validate cross-sectional findings and provide further knowledge on how the given variables change over time.

Validation of Idea Generation through Coworker Reports. An additional element in Study 2 was developed in an effort to reduce self-report bias and garner empirical support for the present (self-report) methodology of measuring employee creativity. As such, respondents were also asked to provide the email addresses of two coworkers at the end of the Time 1 survey. Providing this information was completely voluntary. As an incentive, respondents who provided contact information for two coworkers would be entered into a second drawing to win one of five $25 Amazon gift cards regardless of whether their coworkers participated or not. Respondents were told that the nominated coworkers should be familiar with the respondent's work behaviors and interact with them frequently in order to adequately respond to a brief five-minute survey, which assessed coworker perceptions of several work behaviors (i.e., creativity, organizational citizenship behaviors, performance) of the focal respondent. A reminder email was sent to non-respondent coworkers one week after the initial invitation. In return for their participation, coworker respondents were also entered into a drawing for one of five $25 Amazon gift certificates.

Out of 228 respondents, 28 supplied at least one coworker's name and email address for a total of 55 coworkers' names. Twenty-four coworkers responded to the coworker survey (44% response rate) and were matched to 19 of the Time 1 respondents. Coworker respondents were mostly female (67%). The majority held a Master's degree (38%), but a third (33%) reported having a bachelor's degree and 25% having higher than a Master's degree. The average job tenure with the focal respondent was 4.58 years (*SD* = 4.08) and the average organizational tenure was 5.80 years (*SD* = 5.09). The average age of coworker respondents was 36 years old

and they worked an average of 45 hours a week.

After merging data files, the composite score of idea generation for the focal respondents was significantly correlated with the composite score of the coworker's report of idea generation (r = .74, p <.01). Furthermore, the respondents' intrinsic motivation was marginally predictive of their coworker's report of idea generation (β =.44, p = .07). A larger sample of coworkers and respondents is likely to result in a significant relationship.

Study 2: Measures

Idea Generation. Idea generation (α = .91) was assessed with three items from Holman et al. (2012) and an additional two items developed by Binnewies and Gromer (2012; see Appendix A). Responses were on a 5-point scale (1 = not at all, to 5 = a great deal). A sample item is "I found new ways to accomplish my work."

Time Pressure. The challenge stressor of time pressure was assessed for both work and non-work roles using a single item adapted from the time pressure scale developed by Andrews and Farris (1972; see Appendix A). Respondents were asked how much time pressure they felt from each domain over the past month on a 5-point scale, ranging from 1 = relaxed, no pressure at all, to 5 = extreme pressure, I always feel behind.

Role Demand. The challenge stressor of role demand was assessed with five items from the *perceived work demand* scale (α = .92) and five items adapted from the *perceived family demand* scale (α = .87; Boyar et al., 2007; see Appendix A). Responses were on a 5-point scale (1 = strongly disagree, to 5 = strongly agree). A sample item from the *perceived work demand* scale is "My work requires a lot from me", and a sample item from the *perceived family demand* scale is "I have a lot of responsibility in my family."

Role Conflict. The hindrance stressor of role conflict was assessed through three items from the scale developed by Rizzo, House, and Lirtzman (1970; see Appendix A). Respondents were asked to think about their agreement with the items in regards to their work role (α = .79) and again in regards to their family or non-work roles (α = .85). Responses were on a 5-point scale (1 = strongly disagree, to 5 = strongly agree). A sample item includes "I receive incompatible requests from two or more people."

Role Overload. The hindrance stressor of role overload was assessed with five items adapted from Reilly (1982) by Thiagarajan, Chakrabarty, and Taylor (2006; see Appendix A). Respondents were asked to indicate how often they felt role overload in their work (α = .91) and again in their non-work roles in the past month (α = .92). Responses were on a 7-point scale (1 = never, to 7 = always). A sample item is "I have to do things I do no really have the time or energy for."

Work-Family Conflict. Work-family conflict was assessed with six items from Grzywacz, Frone, Brewer, and Kovner (2006; see Appendix A). Three items assessed frequency of work-to-family conflict (α = .91) with a sample item being, "In the past month, how often did your job or career: Keep you from spending the amount of time that you would like to spend with your family?" Frequency of family-to-work conflict (α = .90) was also assessed with three items, one of which being "In the past month, how often did your home life: Interfere with your job or career?" Responses were on a 6-point scale (0 = never, to 5 = 5 + times per week).

Work-Family Enrichment. Work-to-family and family-to-work enrichment was assessed using a shortened version of the scale developed by Carlson, Kacmar, Wayne, and Grzywacz (2006; Kacmar, Crawford, Carlson, Ferguson, & Whitten, 2014; see Appendix A). Three items measured work-to-family enrichment (α = .86) and 3 items measured family-to-work

enrichment (α = .83). Items were preceded with the stem "My involvement in my work (family)…" Respondents were asked the extent to which they agreed with each statement on a 5-point scale (1 = strongly disagree, to 5 = strongly agree). A sample item for work-to-family enrichment is "provides me a sense of success and this helps me be a better family member" and for family-to-work enrichment "makes me feel happy and this helps me be a better worker."

Resource Gain/Loss. Perceived resource gain and resource loss was assessed with 21 items developed by Chen and Powell (2012) based on previous work by Hobfoll, Lilly, and Jackson (1991) and Greenhaus and Powell (2006). Participants were asked to rate the extent to which they experienced a gain or loss on each item in both the work domain (α = .96) and non-work domain (see Appendix A; α = .97). Responses were on a 7-point scale (-3 = a great deal of loss, to 0 = no change, to 3 = a great deal of gain). Sample resources include, "self-worth", "satisfaction with myself", "adequate rest", "interpersonal skills", and "hope."

Results

Analytic Strategy

Study 1 hypotheses were analyzed using linear regressions within SPSS 21. Predictors in Hypotheses 1a-c were run separately, as well as simultaneously, to determine significant prediction. Interaction terms were created for Hypotheses 2a-b and 3a-b by mean centering the composite measures and multiplying the domain-relevant construct and creativity-relevant construct with the composite measures of challenge stressors and hindrance stressors (Kromrey & Foster-Johnson, 1998). Interaction terms were entered into a stepwise multiple regression to determine moderation (Aiken & West, 1991). For Hypotheses 2c and 3c, the mediation analyses proposed by Baron and Kenny (1986) were followed to identify significant indirect effects. Significant mediation was verified with Sobel tests.

Linear regressions in SPSS 21 were also utilized for Study 2 hypothesis testing. The independent variables of work and non-work stressors were tested individually, as well as in their challenge and hindrance pairs, using regression and correlation to determine significant relationships with idea generation (H4), work-family conflict (H5), and work-family enrichment (H6). Similarly, each direction of work-family conflict and work-family enrichment was tested independently and together on the dependent variable of idea generation. Finally, the measures of work and non-work resources were examined to determine their effect on the aforementioned variables and potential mediation of significant relationships.

To support the cross-sectional findings of the aforementioned analyses, data collected at Time 2 (T2) were used to rerun the analyses using Time 1 (T1) variables as the independent variables and T2 variables as the dependent variables. In order to maximize the variance explained by the other predictors in the model, the T1 measure of the T2 dependent variable was

not used as a control variable in the analyses. Although only 65 respondents completed the T2 survey, the response rate of 35% was above average for online surveys based on previous research (Hamilton, 2003). Thus, significant T1 to T2 analyses are mentioned throughout the Study 2 results to provide additional support for hypothesis testing.

Study 1: Preliminary Results

Reliability estimates and inter-correlations for Study 1 measures are reported in Table 2. One-way ANOVAs were conducted to test for mean level differences based on gender, due to inconsistent results in creativity research based on gender (Baer, 2008; Runco, Cramond, & Pagnani, 2010; see Table 3). Males reported significantly higher idea generation scores than females ($F(1, 321) = 5.97$, $p < .05$, $\eta^2=.02$) and also scored significantly higher on the Creative Personality Scale ($F(1, 322) = 7.33$, $p < .05$, $\eta^2=.02$). Females reported significantly more non-work overload than males ($F(1,322) = 11.93$, $p < .05$, $\eta^2=.04$). Thus, gender was used as a control variable in testing the following hypotheses.

Study 1: Hypothesis Testing

In Hypothesis 1a-c, domain-relevant skills, creativity-relevant skills, and intrinsic motivation were each proposed to positively relate to idea generation. This hypothesis was fully supported at the bivariate level (see Table 1). Specifically, individuals with higher domain-relevant skills (operationalized as organizational tenure), creativity-relevant skills (operationalized using the CPS), and intrinsic motivation reported significantly higher idea generation ($r = .16$, $p < .05$; $r = .39$, $p < .05$; $r = .50$, $p < .05$, respectively). Hypothesis 1 was also supported within a multiple regression. The three independent variables demonstrated incremental prediction of idea generation ($\beta = .17$, $p < .05$; $\beta = .29$, $p < .05$; $\beta = .43$, $p < .05$, respectively; see Appendix C).

Table 2. Reliabilities and Inter-correlations for Study 1

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Idea Generation	(.93)											
2. Organizational Tenure	.16**	--										
3. CPS	.39**	-.02	--									
4. Intrinsic Motivation	.50**	.00	.23**	(.90)								
5. Work Demand	.30**	-.03	.02	.27**	(.92)							
6. Work Time Pressure	.19**	.05	.06	.14*	.57**	--						
7. Non-work Demand	0.08	-.01	-.06	.05	.14*	.11	(.87)					
8. Non-work Time Pressure	-0.05	.10	-.08	-.15**	.06	.18**	.50**	--				
9. Work Role Conflict	0.11	-.07	.01	.09	.23**	.39**	.19**	.18**	(.80)			
10. Work Overload	.13*	-.01	-.08	.03	.53**	.61**	.20**	.22**	.51**	(.92)		
11. Non-work Role Conflict	0.03	-.02	-.08	-.02	.08	.12*	.36**	.31**	.38**	.23**	(.80)	
12. Non-work Overload	-0.02	.05	-.12*	-.13*	.13*	.24**	.45**	.54**	.29**	.54**	.38**	(.93)

Note. N = 322-323. CPS = Creative Personality Scale. *p < .05; **p < .01

Table 3. Mean Level Differences for Gender in Study 1

	Overall		Male (N=184)		Female (N=139)			
Variables	Mean	SD	Mean	SD	Mean	SD	F	Eta^2
1. Idea Generation	3.41	.91	3.52	.80	3.27	1.01	5.97*	.02
2. Organizational Tenure	73.96	59.61	74.25	58.64	73.59	61.30	0.01	
3. CPS	4.17	3.74	4.66	3.52	3.53	3.93	7.33**	.02
4. Intrinsic Motivation	4.36	1.48	4.45	1.44	4.24	1.52	1.57	
5. Work Demand	3.60	.88	3.60	.86	3.60	.91	0	
6. Work Time Pressure	2.69	.92	2.66	.91	2.72	.94	0.3	
7. Non-work Demand	3.18	.94	3.16	.87	3.21	1.03	0.16	
8. Non-work Time Pressure	2.22	.94	2.17	.90	2.29	.99	1.27	
9. Work Role Conflict	2.70	.94	2.74	.91	2.65	.98	0.81	
10. Work Overload	2.92	1.15	2.81	1.05	3.06	1.26	3.59^	.01
11. Non-work Role Conflict	2.68	1.01	2.70	.99	2.65	1.03	0.28	
12. Non-work Overload	3.15	1.22	2.95	1.07	3.42	1.35	11.93**	.04

Note. N = 322-323.Organizational Tenure in months. CPS = Creative Personality Scale. ^p <.10. *p < .05; **p < .01

In Hypothesis 2a and 2b, work role and non-work role challenge stressors (i.e., time pressure and role demand) were predicted to interact with a person's domain-relevant skills, as well as their creativity-relevant skills, to impact idea generation. Four sets of regression analyses were run for each hypothesis (for a total of 8) to analyze each of the moderators: work time pressure, non-work time pressure, work role demand, non-work role demand. The analyses produced several significant main effects. Work time pressure and work role demand both showed incremental prediction of idea generation over domain-relevant skills (β =.18, p <.05; β =.31, p <.05, respectively) and creativity-relevant skills (β =.16, p <.05; β =.29, p <.05, respectively). Non-work role demand also significantly predicted idea generation over the effect of creativity-relevant skills (β =.11, p <.05). However, significant moderation effects were not found; Hypothesis 2a and 2b were not supported (see Appendix C for full results).

Work role and non-work role challenge stressors were proposed to positively relate to idea generation through the mediator of intrinsic motivation in Hypothesis 2c. Based on the method proposed by Baron and Kenny (1986), work demand was shown to significantly predict idea generation (Step 1: β =.30, p <.05), as well as the mediator, intrinsic motivation (Step 2: β =.27, p <.05). Intrinsic motivation was significantly related to idea generation (Step 3: β =.49, p <.05) and resulted in a reduction in the relationship between work demand and idea generation when included in the regression analyses (Step 4: β =.19, p <.05). Thus, intrinsic motivation partially explains the significant relationship between work role demand and idea generation (see Appendix C). This indirect effect was confirmed with a Sobel test (z = 4.39, p < .05). Similarly, intrinsic motivation was also found to partially mediate the relationship between work time pressure and idea generation (Step 1: β =.19, p <.05; Step 4: β =.13, p <.05). Full results can be found in Appendix C. A Sobel test confirmed the indirect effect of intrinsic motivation (z = 2.46,

$p < .05$). Thus, Hypothesis 2c was supported.

The moderating effect of work role and non-work role hindrance stressors was examined in Hypothesis 3a and 3b. Role conflict and role overload were proposed to interact with domain-relevant skills and creativity-skills to decrease idea generation. Eight regression analyses were conducted to assess Hypothesis 3a and 3b (see Appendix C). For domain-relevant skills (i.e., organizational tenure), the work hindrance stressors of work role conflict and work overload showed incremental prediction of idea generation (β =.12, p <.05; β =.13, p <.05, respectively). This also occurred for the predictor of creativity-relevant skills, where work role conflict and work overload had incremental significant main effects on idea generation (β =.11, p <.05; β =.16, p <.05, respectively). However, none of the non-work role hindrance stressors showed significant main effects with idea generation. Of note, despite being proposed as negative relationships, work role conflict and work overload showed positive effects on idea generation. This may be a result of the strong relationship they shared with work demand, which will be discussed later. Although many significant main effects were present, no significant moderation was found, thus Hypothesis 3a and 3b were not supported.

In Hypothesis 3c, intrinsic motivation is proposed as a mediator of the negative relationship between hindrance stressors and idea generation. Each of the four hindrance stressors (work role conflict, non-work role conflict, work overload, non-work overload) were examined with intrinsic motivation, but no significant mediation was found (see Appendix C for full results).

Study 1: Post Hoc Analyses

Curvilinear Relationships. Given the lack of consistent significant results in Study 1, a series of post hoc analyses were conducted to further examine these results as well as identify

additional findings of interest. Although the relationship between stress and performance is studied as linear here, previous research has shown the potential curvilinear nature of the relationship (Yerkes & Dodson, 1908; Byron et al., 2010; Muse, Harris, and Field, 2003). As such, it is possible that some of the null findings from Study 1 were a result of non-linear relationships between work and non-work stressors and idea generation. To address this, the independent variables (all eight types of stressors) were centered to zero and then squared to create quadratic terms (Cohen & Cohen, 1983; Miles & Shevlin, 2001). A series of polynomial regression analyses were then run with the original predictive variable (i.e., linear term) entered into the first step, and its quadratic counterpart entered into the second step with idea generation as the outcome variable. A curvilinear effect would be seen if there was a significant change in R-square from Step 1 to Step 2. No curvilinear relationships were found based on these regression analyses (see Appendix C).

Stressors as Control Variables. Although challenge and hindrance stressors have been identified as distinct categories, they are still conceptually related and thus, may have spurious effects on each other. To ensure that Hypothesis 2 was not affected by hindrance stressors and Hypothesis 3 was not affected by challenge stressors, both were entered as control variables into the appropriate corresponding moderation and mediation analyses. There was no change in the outcomes of the moderation analyses, but when controlling for work hindrance stressors, intrinsic motivation fully mediated the relationship between work time pressure and idea generation (Step 1: β =.18, p <.05; Step 4: β =.09 , p =.15) compared to the partial mediation found without the control variables. However, work demand remains only partially mediated and there was no change to the lack of mediation between non-work challenge stressors and idea generation. In terms of controlling for challenge stressors in the analysis of intrinsic motivation

as a mediator of hindrance stressors and idea generation, the proposed relationships remain unchanged with no significant mediation being found (see Appendix C for full analyses).

Additional Effects of Intrinsic Motivation. Based on propositions made by Amabile (1983), intrinsic motivation was examined as a mediator of extrinsic stressors and idea generation. Stressors are thought to have a direct impact on intrinsic motivation which would then reduce idea generation, rather than interacting with intrinsic motivation to affect idea generation as suggested with the other two componential factors. However, given that Hypotheses 2 and 3 demonstrate only partial mediation with intrinsic motivation, if any, and no moderation was found with domain-relevant and creativity-relevant skills, intrinsic motivation was tested as a moderator to determine its interactive ability. Multiple regression analyses revealed that work time pressure (β = -.12, p <.05), work overload (β = -.10, p <.05), and non-work overload (β = -.13, p <.05) all interact with intrinsic motivation to affect idea generation (see Appendix C). Further examination of these interactions indicates that work time pressure and work overload have no effect on workers with high intrinsic motivation, meaning they produce novel ideas regardless of the present stressors. For those with low and moderate intrinsic motivation, however, idea generation goes up as work time pressure and work overload increase. Non-work overload, on the other hand, does have a slightly negative effect on people with high intrinsic motivation where a small decline in creativity occurs as non-work overload rises. Similar to the previous analyses with work time pressure and work overload though, non-work overload increases idea generation for people with low or moderate motivation.

Study 2: Preliminary Results

Reliability estimates and inter-correlations for Study 2 measures are reported in Table 4. One-way ANOVAs were conducted to test for mean level differences based on gender and

sample (see Tables 5 & 6). Of note, females were significantly higher than males on both work-to-family enrichment and family-to-work enrichment, $F(1, 224) = 5.61$, $p < .05$, $n^2 = .02$; $F(1,224) = 6.59$, $p < .05$, $n^2 = .03$, respectively. Additionally, given that the participants came from 3 different samples, it was possible that group differences might exist, but Study 2 variables did not show any significant differences based on sample that were strong enough to consider it as a control variable. In addition to testing the proposed hypotheses in T1, they were also run again using the T1 data to predict the T2 data of 65 respondents. The majority of results was replicated in the longitudinal design and will be noted in conjunction with the cross-sectional findings below when supportive, as well as appropriate.

Study 2: Hypothesis Testing

In Hypothesis 4, the notion that challenge stressors would positively relate to idea generation (4a) and hindrance stressors would negatively relate to idea generation (4b) was proposed. At the bivariate level, work demand and work time pressure both significantly related to idea generation ($r = .26$, $p < .05$; $r = .17$, $p < .05$, respectively; see Table 4). However, when the challenge stressors were entered simultaneously into a multiple regression (see Appendix C), only work demand was a significant predictor ($\beta = .28$, $p < .05$) and work time pressure was not ($\beta = -.03$, $p > .05$), indicating that work demand held more incremental predictive power with idea generation than the other work challenge stressor. Non-work demand was also significantly correlated with idea generation ($r = .11$; $p = .05$), but non-work demand was not significantly predictive in the regression ($\beta = .11$, $p = .19$). These relationships held when entered as predictors of idea generation at T2 (see Appendix C), but work demand at T1 became only marginally predictive of idea generation at T2 ($\beta = .31$, $p < .10$). This is likely a result of the small sample size at T2. In general, Hypothesis 4a was only partially supported.

Table 4. Study 2 Reliabilities and Inter-correlations for Study 2

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. T1_Idea Generation	(.91)														
2. T1_Work Demand	.26**	(.92)													
3. T1_Work Time Pressure	.17*	.74**	--												
4. T1_Non-work Demand	.11	.06	.02	(.87)											
5. T1_Non-work Time Pressure	0.06	.06	.12^	.64**	--										
6. T1_Work Overload	.14*	.64**	.67**	.16*	.19**	(.91)									
7. T1_Work Role Conflict	.08	.24**	.17*	.09	.00	.32**	(.79)								
8. T1_Non-work Overload	.1	.11	.12	.61**	.58**	.37**	.14*	(.92)							
9. T1_Non-work Role Conflict	-.00	-.15*	-.13	.38**	.36**	.08	.19**	.56**	(.85)						
10. T1_WFC	.08	.31**	.33**	.21**	.23**	.45**	.13*	.35**	.07	(.91)					
11. T1_FWC	.04	.09	.08	.32**	.25**	26**	.08	.41**	.25**	.58**	(.90)				
12. T1_WFE	.24**	.09^	.3	.06	.03	-.08	-.11	-.12	-.045	-.07	.07	(.86)			
13. T1_FWE	.09	.00	-.01	.06	-.07	-.04	.11	-.21**	-.20**	-.09	-.01	.49**	(.83)		
14. T1_Work Resources	.11	.04	-.01	-.03	-.15*	-.09	-.13*	-.16*	-.10	-.13^	.01	.30**	.05	(.96)	
15. T1_Non-work Resources	.07	.03	.02	-.09	-.22**	-.07	.05	-.25**	-.18**	-.14*	-.14*	.11	.20**	.69**	(.97)

Note. $N = 228$. ^p < .10; *$p < .05$; **$p < .01$

Table 5. Mean Level Differences for Gender in Study 2

	Male (N=43)		Female (N=183)			
Variables	Mean	SD	Mean	SD	F	Eta^2
Idea Generation	3.85	.93	3.74	.91	.50	
Work Demand	3.73	.78	3.78	.85	.10	
Work Time Pressure	3.21	.91	3.32	1.04	.42	
Non-work Demand	2.96	.94	3.22	.94	2.58	
Non-work Time Pressure	2.44	1.12	2.94	1.10	7.14**	.03
Work Role Conflict	2.99	.84	2.92	.91	.20	
Work Overload	2.14	1.01	3.21	1.21	.13	
Non-work Role Conflict	2.67	.86	2.70	1.06	.03	
Non-work Overload	3.22	1.20	3.45	1.25	1.25	
WFC	3.26	1.31	3.10	1.37	0.52	
FWC	2.29	1.22	2.24	1.14	0.06	
WFE	3.36	.94	3.69	.80	5.61*	.02
FWE	3.50	.83	3.82	.72	6.59*	.03

Note. $N = 227$. ^p < .10;*$p < .05$; **$p < .01$

Table 6. Mean Level Differences for Organization in Study 2

	Organization 1 (N=73)		Organization 2 (N=78)		Organization 3 (N=77)			
Variables	Mean	SD	Mean	SD	Mean	SD	F	Eta^2
Idea Generation	3.62	.87	3.81	.92	3.85	.93	1.35	
Work Demand	3.75	.84	3.80	.84	3.73	.83	.16	
Work Time Pressure	3.07	1.08	3.46	.91	3.32	1.04	2.91^	.03
Non-work Demand	3.01	.87	3.36	.97	3.12	.94	2.88^	.03
Non-work Time Pressure	2.58	1.08	2.94	1.09	3.00	1.15	3.20*	.03
Work Role Conflict	2.85	.89	2.86	.77	3.11	1.02	2.04	
Work Overload	3.12	1.22	3.26	1.13	3.18	1.19	.28	
Non-work Role Conflict	2.53	.97	2.78	.99	2.76	1.08	1.36	
Non-work Overload	3.32	1.29	3.55	1.23	3.33	1.22	.85	
WFC	2.92	1.43	3.41	1.26	3.01	1.36	2.92^	.03
FWC	2.20	1.07	2.43	1.26	2.09	1.09	1.83	
WFE	3.66	.78	3.65	.82	3.59	.92	.15	
FWE	3.79	.68	3.80	.77	3.69	.79	.48	

Note. $N = 227$. ^p < .10;*$p < .05$; **$p < .01$

The four hindrance stressors (i.e., work role conflict, non-work role conflict, work overload, non-work overload) were examined at the bivariate level and entered into a multiple regression to test the proposed negative effect on idea generation. None of the hindrance stressors were significant negative predictors of idea generation. Only work overload

significantly correlated with idea generation, but the relationship was positive (r =.14, p <.05). Work overload was not significant when run within the multiple regression (β =.09, p =.25). Thus, Hypothesis 4b was not supported.

In Hypothesis 5a, work role hindrance stressors were predicted to positively relate to work-to-family conflict. Both work overload and work role conflict were significantly correlated with work-to-family conflict (r =.45, p <.05; r =.13, p <.05, respectively). However, only work overload showed incremental prediction in the multiple regression (β =.45, p < .05; see Appendix C). These relationships are confirmed when examining work-to-family conflict at T2, with work overload still a significant predictor (β = .54, p < .05), and work role conflict showing marginal prediction (β =. 21, p < .10; see Appendix C). Thus, Hypothesis 5a is supported at T1 and across time.

The non-work role hindrance stressors were proposed to positively relate to family-to-work conflict in Hypothesis 5b. Similar to Hypothesis 5a, at the bivariate level, non-work overload and non-work role conflict positively related to family-to-work conflict (r =.41, p <.05; r =.25, p <.05, respectively). However, only non-work overload is significantly predictive in the regression analysis (β =.39, p < .05), whereas non-work role conflict does not show incremental prediction (β =.04, p >.05). Non-work overload and non-work role conflict at T1 also significantly related to family-to-work conflict at T2 (r =.46, p <.05; r =.50, p <.05, respectively). Within the T1 to T2 multiple regression, non-work role conflict was the significant predictor of family-to-work conflict though (β =.36, p < .05), whereas non-work overload was only marginally significant (β =.27, p < .10). Overall, Hypothesis 5b was supported (see Appendix C for full results).

In Hypothesis 6a, the work role challenge stressors of work time pressure and work

demand were proposed to positively relate to work-to-family enrichment. Hypothesis 6a was not supported in T1. Neither work time pressure nor work demand significantly correlated to work-to-family enrichment (see Appendix C). However, when predicting work-to-family enrichment at T2, work demand at T1 was significant (β =.47, p < .05; see Appendix C), indicating at least partial support for Hypothesis 6a across time.

Non-work demand and non-work time pressure, both non-work challenge stressors, were predicted to positively relate to family-to-work enrichment in Hypothesis 6b. Neither non-work demand nor non-work time pressure significantly correlated with family-to-work enrichment. However, when entered into a multiple regression, non-work time pressure negatively predicted family-to-work enrichment (β =-.17, p < .05) and non-work demand had a marginally significant positive relationship with it (β =.17, p = .051; see Appendix C). Thus, individually these two variables did not affect family-to-work enrichment, but coupled together they became impactful. However, these results may be due to one of the predictors being a suppressor variable, which reduces the error in the model, and subsequently raises the regression coefficients. When examining family-to-work enrichment at T2, neither non-work demand nor non-work time pressure has a significant influence (see Appendix C). Thus, it appears that Hypothesis 6b was not supported.

For Hypothesis 7a and 7b, work-to-family conflict and family-to-work conflict were proposed to negatively relate to idea generation. Neither Hypothesis 7a nor 7b was supported in T1 (see Appendix C). Work-to-family enrichment was predicted to positively relate to idea generation in Hypothesis 8a. Work-to-family enrichment significantly predicted more idea generation (β =.24, p < .05), supporting Hypothesis 8a. Finally, family-to-work enrichment was

hypothesized to positively relate to idea generation in Hypothesis 8b. Hypothesis 8b was not supported (see Appendix C).

Research Question Analysis

In an attempt to help explain the hypothesized relationships, two exploratory research questions were posed to test an established theory of resource gain and loss. The first research question investigated the ability of perceived resource gain from the work and non-work domains (as reported by respondents) to mediate the proposed pathways connecting challenge stressors, work-family enrichment, and idea generation. Perceived resource loss was examined in the second research question to determine how it related to hindrance stressors, work-family conflict, and idea generation. Work and non-work resources were assessed on a 7-point scale that covered gain (positive) and loss (negative), as well as no change which was scored as a 0. The average score on work resources was .81 at Time 1 (T1) and .84 at Time 2 (T2), indicating that most participants experienced gains in work resources in the month preceding the T1 study. Similarly, non-work resources averaged .79 at T1 and .82 at T2.

Before addressing the specific research questions, significant correlations are presented in Table 7. Both non-work time pressure and non-work overload were related to a reduction in work resources (r = -.15, p < .05; r =-.16, p < .05) and non-work resources (r = -.22, p < .05; r = -.25, p < .05) at T1. Almost none of the work stressors resulted in significant changes in work resources; only work role conflict was negatively related to work resources (r =-.13, p <.05) in T1, but none of the work-based stressors had a significant effect on work or non-work resources at T2. In T1, work resources significantly predicted work-to-family enrichment (r =.30, p <.05) and non-work resources was positively related to family-to-work enrichment (r =.20, p <.05). These relationships held across time as well (r =.47, p <.05; r =.40, p <.05). Generally, it seems

that non-work stressors and work-family constructs relate to the gain and loss of psychological resources more so than work-related stressors.

Table 7. Correlations between T1 and T2 Variables and T1 and T2 Work and Non-work Resources

Variables	T1_Work Resources	T1_Non-work Resources	T2_Work Resources	T2_Non-work Resources
1. T1_Idea Generation	.11	.07	.14	.06
2. T1_Work Demand	.04	.03	.17	.20
3. T1_Work Time Pressure	-.01	.02	.08	.14
4. T1_Non-work Demand	-.03	-.09	-.26^	-.31*
5. T1_Non-work Time Pressure	-.15*	-.22**	-.37**	-.45**
6. T1_Work Overload	-.09	-.07	-.07	-.05
7. T1_Work Role Conflict	-.13*	.05	-.10	-.02
8. T1_Non-work Overload	-.16*	-.25**	-.23^	-.36*
9. T1_Non-work Role Conflict	-.10	-.18**	-.17	-.26^
10. T1_WFC	-.13^	-.14*	-.06	-.11
11. T1_FWC	.01	-.14*	.09	-.11
12. T1_WFE	.30**	.11	.47**	.43**
13. T1_FWE	.05	.20**	.09	.40**
16. T2_Idea Generation	.27*	.19	.18	.05
17. T2_Work Demand	.16	.09	.06	.02
18. T2_ Work Time Pressure	-.06	-.03	-.04	-.01
19. T2_Non-work Demand	-.13	-.22^	-.16	-.36**
20. T2_Non-work Time Pressure	-.35**	-.31*	-.33*	-.43**
21. T2_Work Overload	.03	-.08	-.13	-.15
22. T2_Work Role Conflict	.08	.15	-.12	-.04
23. T2_Non-work Overload	-.04	-.19	-.21	-.48**
24. T2_Non-work Role Conflict	-.04	-.11	-.18	-.37**
25. T2_WFC	-.12	-.15	-.27*	-.22
26. T2_FWC	.01	-.21	-.09	-.37**
27. T2_WFE	.24^	.21	.46**	.30*
28. T2_FWE	.09	.17	.11	.29*

Note. N = 228 at T1, N = 64 at T2. ^p < .10; *p < .05; **p < .01

Given that many of the hypothesized relationships from which the research questions were based were not supported, analysis of the research questions was limited. However, the

mediator of work resources was examined for the relationship between work demand and work-to-family enrichment, and work overload and work-to-family conflict. The mediator of non-work resources was examined for the relationship between non-work overload and family-to-work conflict, as well as work-family enrichment and idea generation. Results of the meditational analyses can be found in Appendix C. Only non-work overload was found to have an indirect effect on family-to-work conflict through the mediator of non-work resources based on regression analyses (β =.40, p <.05). However, further testing with a Sobel test indicated that the indirect effect was not significant (z =1.86, p = .06). Although it does appear that work resources and non-work resources have an influence on many of the included variables, their meditational ability was not apparent in the present study.

Study 2: Post Hoc Analyses

Whereas Hypotheses 5 and 6 were specific as to what stressors would positively relate to work-family conflict and work-family enrichment based on the challenge-hindrance framework, it is possible that work-family conflict and work-family enrichment share negative relationships with other stressors. In other words, because challenge stressors do not positively impact work-family enrichment, perhaps they have a negative impact on work-family conflict. As such, challenge stressors were tested as predictors of work-family conflict and hindrance stressors were tested as predictors of work-family enrichment to fully integrate the work-family interface with the challenge-hindrance stressor framework. Although it was thought that challenge stressors would negatively impact work-to-family conflict given their conceptualization as good stressors, work time pressure actually predicted an increase in work-to-family conflict (β =.23, p < .05; see Appendix C for full results). Similarly, non-work demand significantly predicted an increase in family-to-work conflict (β =.28, p < .05). In terms of work-family enrichment, none

of the work hindrance stressors significantly predicted work-to-family enrichment, even in a negative direction, but non-work overload (i.e., non-work hindrance stressor) had a marginal negative impact on family-to-work enrichment (β = -.15, p < .10).

Discussion

Through this dissertation, I sought to investigate how a person's social environment, specifically the stressors they perceive at work and outside of work, affects employee creativity. There has been much debate over whether work stress enhances or inhibits creativity with previous research providing rationale and empirical support for both sides (Byron et al, 2010). However, limited research has examined how stress from a person's family and other non-work roles impact their ability to be creative. Based on the present results, it appears that work-related stressors, such as work demand and work time pressure, positively impact idea generation at work, a finding that adds to the ongoing debate. On the contrary, non-work stressors were not found to *directly* affect employee creativity. Given that this is the first known investigation of non-work stress in the creativity domain to date, organizational leaders and work-family researchers should consider that non-work factors may be influencing creativity indirectly through other related constructs, as demonstrated by the positive relationship between work-to-family enrichment and idea generation.

By conducting two independent, but complementary studies, a better understanding of the relationship between stressors and creativity is provided, adding to previous experimental research (Byron et al, 2010) and building a foundation for future investigations of non-work variables in the field of creativity. Although a plethora of findings are available through the analyses of both studies, I have chosen to elaborate on several of the key contributions made to the creativity and work-family literature. In the following discussion, I will first review the effect

of work-related stressors on employee creativity and the implications regarding the componential model of creativity and challenge-hindrance stressor framework. Next, the role of non-work stressors on idea generation will be presented, followed by a discussion of the impact of work-family constructs. Finally, the measurement and mechanism of work and non-work resources will be discussed. Following the discussion of major contributions, various limitations and recommendations for future research are offered, and lastly, final conclusions are provided.

The Impact of Work-related Stressors on Creativity

In both Study 1 and Study 2, the challenge-hindrance stressor framework (LePine et al., 2005) was proposed as a way to differentiate between good stress and bad stress, and provide insight into why previous studies on stress and creativity found differing results, as it had for the criterion of job performance. As such, common stressors used in the creativity literature and tested previously in studies of the challenge-hindrance stressor framework were chosen to examine the question of whether certain stressors helped or hurt idea generation. The challenge stressors of work demand and work time pressure were found to have a positive relationship with creativity, as predicted by the stressor framework proposed by LePine et al. (2005). This indicates that stressors such as these have developmental and achievement based parameters, explaining why they positively relate to work outcomes, such as job performance and job satisfaction (Cavanaugh et al, 2000; LePine et al, 2005). However, in order for the challenge-hindrance stressor framework to be validated as a way to explain the variability of stress on creativity, stressors identified as a hindrance should be negatively related to idea generation due to their inhibitory and demotivating nature. The negative effect of work-based hindrance stressors was not supported in Study 1 or Study 2. In fact, work overload, conceptually a hindrance stressor, showed a positive influence on creativity in both studies, although it was

predicted that work demand and work time pressure would be the only work stressors to result in increased creativity.

Given that only positive relationships were found in Study 1 as well as across time in Study 2, it may be that the stressors investigated in the present studies are not perceived as a hindrance, but rather more or less of a challenge stressor. In other words, stressors, particularly from the work domain, may all be perceived as characteristics of the task or job that must be overcome to be successful, or at the very least to get the job done. In support of this finding, Webster, Beehr, and Love (2011) found that stressors (e.g. role conflict, role ambiguity, workload) could be simultaneously appraised as both challenge and hindrance stressors. Thus, it appears that we cannot rely strictly on the a priori categorization of previous researchers as workers may appraise work and non-work stressors as good, bad, or both. Whereas other studies have found hindrance stressors to negatively relate to the outcomes of interest (e.g., Podsakoff et al., 2007), the present research indicates that hindrance stressors may not be negatively appraised enough to show deleterious effects.

As such, the categorization of challenge and hindrance is not helpful in explaining what is most impactful to idea generation. Instead, it may be intrinsic motivation that explains why certain work stressors result in more creativity. In Study 1, the relationship between work demand and work time pressure, and creativity, was partially explained by a worker's intrinsic motivation at work. These particular stressors relate to an increase in intrinsic motivation (Zhou, Hirst, & Shipton, 2012), which translates into more idea generation. The relationship between intrinsic motivation and creativity is a key tenet in Amabile's (1983) componential model of creativity. She even proposed its mediating role, but only a few studies have tested this claim

(e.g., Liang, Hsu, Chang, 2013). Furthermore, intrinsic motivation also interacts with several work stressors to affect creativity. It appears that as work time pressure and work overload grows, creativity improves for individuals with low and moderate intrinsic motivation, but these two stressors have no effect on individuals with high intrinsic motivation who are already generating novel ideas at a much higher level. In other words, work challenge stressors positively relate to creativity because they have a positive impact on individuals with lower levels of intrinsic motivation.

The present findings reveal that intrinsic motivation might be one explanation for the inconsistent findings regarding stress in the creativity literature. Very few stressors are thought to increase intrinsic motivation, but perhaps when stressors are appraised as challenging rather than hindering, employees are more likely to internalize the task and work harder on it. Organizations may benefit from this set of findings regarding the relationship between work stress, intrinsic motivation, and creativity. Rather than increasing stress by focusing only on the importance of getting work done quickly, organizations and managers could instead emphasize the importance and meaningfulness of certain projects when the workload increases and deadlines draw near in order to see the most creativity from employees. This suggestion integrates the present findings with the Job Characteristics Model (Hackman & Lawler, 1971; Hackman & Oldham, 1975), which will be explicated below. In other words, while the project or task at hand may be extremely demanding and stressful, employees may still be able to generate novel ideas if they perceive what they are working on to be significant to a larger goal or purpose, either personal or organizational (i.e., intrinsically motivated).

This type of mindset is often prevalent in technology companies and other industries where success is driven by new and often revolutionary ideas that may have a large impact on

society. However, employees in all avenues of work are likely to benefit when conveyed the meaningfulness of their tasks, especially in stressful contexts. The Job Characteristics Model speaks directly to this point through the core job characteristics of task significance and task identity, which have been theorized to result in experienced meaningfulness of work, which relates to the outcomes of internal work motivation (Hackman & Lawler, 1971; Hackman & Oldham, 1975). Whereas Hackman and colleagues did not speak about the effect of stress in the basic model, making a job more challenging was the primary way to increase motivation and work outcomes (Hackman & Oldham, 1976). Coupled with the finding that certain work stressors predict more creativity, it would be advisable to organizations wishing to enhance their creative efforts to avoid making work more stressful, but instead make stressful circumstances more meaningful.

Although the positive effect of work stressors on creativity can be partially explained by intrinsic motivation, this was only the first investigation of the challenge-hindrance stressor framework within the creativity domain. Other explanations may exist for this positive relationship as well as the lack of negative relationships with hindrance stressors. It might be that the particular stressors in these two studies were too similar to each other to show opposing effects. As mentioned earlier, the four hindrance stressors were chosen based on their alignment with work-family constructs in previous research, as well as past studies of the challenge-hindrance stressor framework. However, work role conflict and work overload both correlated very highly with work demand, a challenge stressor, indicating that these constructs might overlap too much to be considered a hindrance stressor.

Given the present hindrance stressors did not predict creativity, as expected, other hindrance stressors that might significantly reduce creativity if included should be considered.

One such hindrance stressor that would be insightful to test is organizational politics. According to Vigoda (2003), organizational politics describe the distinct context of interpersonal relations within a workplace, and are often characterized by the likelihood of employees to use power to sway others for individual or shared interests, or to avoid undesirable outcomes within the organization (Bozeman, Perrewe, Kacmar, Hochwarter, & Brymer, 1996). Although likely related to work role conflict, organizational politics represent the larger work environment rather than the individual perceptions of stressors used in the present studies. As such, organizational politics is a more stable hindrance stressor and thus may have a stronger effect on creativity as employees struggle to navigate it daily. A similar static hindrance stressor that should also be considered is resource inadequacy, or the lack of necessary resources to accomplish a task. Resource inadequacy could take the physical form, such as no printer paper, outdated software, or broken tools, as well as an intellectual form, where workers do not have access to training, mentorship, or feedback. Perhaps the type of hindrance stressor, static versus dynamic, moderates the relationship between it and idea generation. It may be that in the present samples the dynamic and perception-based hindrance stressors of work overload and work role conflict are not as impactful to creativity as more stable and context-based hindrance stressors like organizational politics and resource inadequacy might be. As such, future research to compare the effects on creativity that these two types of hindrance stressors have is recommended.

Furthermore, it also may be that the stressors of work overload and work role conflict negatively affect creativity when paired with other variables such as an unsupportive supervisor or low creative self-efficacy. This interactionist perspective is supported by Woodman et al. (1983) and recent considerations by Zhou and Hoever (2014). In line with Amabile's componential theory, Woodman et al. (1993) propose an interactionist model of creativity where

a person's history, cognitive ability, experiences, personality, motivation, social influences, and contextual influences all contribute to individual creativity which then affects and is affected by group creativity, and finally organizational creativity. Whereas Amabile studies creativity within a person's "relevant social setting", Woodman and colleagues take a more systemic perspective, by integrating the creative process, product, person, and situation. Based on this conceptualization, there are a wide variety of both internal and external forces that could be considered when investigating the antecedents of creativity. Additionally, Zhou and Hoever (2014) propose a typology that categorizes the types of interactions between individual and contextual factors and allows future researchers to take a more refined approach to the study of creativity antecedents.

Non-work Role Stressors and Creativity

A primary goal and contribution of this dissertation was to investigate if and how non-work stressors affected creativity as this relationship had yet to be examined in previous research and would begin to bridge the creativity and work-family literatures. Additionally, as executives and leaders focus more on fostering creativity in their organizations, their attention has begun to turn from work factors to the effects of non-work factors. This can already be seen in the decision by Yahoo CEO, Marissa Mayer, to restrict telecommuting in an effort to increase collaboration and creativity. However, in the present findings, non-work stressors (e.g., non-work time pressure, non-work overload) did not directly relate to employee creativity.

Given this is one of the first investigations of non-work stress in the creativity domain, there are several explanations for this finding, as well as a multitude of third variables that might alter the relationship between non-work stressors and creativity in future studies. First, the non-work stressors assessed in Study 1 and Study 2 were chosen because they paralleled the

measures of work stressors, as well as fit into the challenge-hindrance stressor framework, both of which made it easier to interpret potential findings. Although the non-work stressors did not negatively predict creativity as expected, the constructs demonstrated adequate reliability and their relationships with work-family conflict and work-family enrichment aligned with previous research indicating that validity was not an issue. However, the similarity in the wording of the work and non-work stressor measures could have affected responses, signifying that future research should employ different measures of non-work stressors that also aim to capture a larger portion of the non-work domain.

Another explanation for the null relationship between non-work stressors and idea generation may be found in the sample's tendency to report high amounts of idea generation. In fact, more than 75% of respondents reported that the aggregated idea generation items were somewhat true of them or more at work, meaning the majority of the sample felt they were fairly creative at work. Regardless of whether this was an accurate assessment of their creativity or due to self-report bias (issues that will be discussed in the limitations section), there was not much variance to support a significant negative relationship between non-work stress and idea generation even if one did exist. In the present dissertation, it was the goal to collect data from a variety of different contexts and occupations, which limited control over the range of creativity reported. Thus, future researchers interested in the role of non-work stressors on creativity would benefit from using a sample of individuals whose jobs possess the full range of idea generation and are comfortable reporting low levels.

Although non-work stress might not directly impact creativity, as seen in the present studies, it is possible that non-work stressors have an additive or interactive effect when occurring with individual characteristics, as well as with other workplace attitudes and behaviors.

For example, in Study 1, we see that when paired with a creative personality, non-work demand has a significant positive relationship with idea generation. Furthermore, non-work overload and intrinsic motivation significantly interact with creativity, where individuals with high levels of intrinsic motivation become slightly less creative as non-work overload increases. Thus, there is reason to continue investigating non-work constructs in relation to creativity in order to understand the intricacies of how non-work variables impact idea generation at work. Previous research has identified many positive and negative direct predictors of creativity, some of which could potentially interact with non-work stressors to affect creativity, such as leadership style, organizational climate, mood, and team characteristics (Zhou & Hoever, 2014). For example, a supervisor or organization that is perceived as family-supportive would be expected to interact with the non-work demand of employees to positively impact idea generation. Additionally, there are non-work variables outside the realm of stressors that may influence creativity. For example, Madjar et al. (2002) found that non-work support of creativity resulted in more employee creativity due to more positive affect.

As such, it appears that non-work variables share a more indirect relationship with idea generation, one in which researchers should begin the process of uncovering, but which also complicates the insight demanded by organizational leaders. As societal and technological changes continue to blur the lines between work and non-work, organizations have become more interested in how they can support their employees' non-work lives while also increasing profits, resulting in a variety of policies and programs, such as flexible work arrangements, back-up child care, and on-site amenities. However, before leaders make any major decisions regarding the implementation or discontinuation of certain family-friendly policies in hopes of improving creativity, they should consider employing a detailed study of their workforce to ensure they

understand how family and other non-work roles are truly affecting work outcomes. Based on the present findings, organizations may be tempted to reduce their emphasis on non-work benefits and strategies, but until further research can be done on their relationship with creativity, that is discouraged, especially in light of the subsequent relationship between work-family enrichment and creativity.

The Role of Work-Family Enrichment

The work-family literature has been dominated by the construct of work-family conflict since its conception (Byron, 2005). Yet, in recent years, its more optimistic antithesis, work-family enrichment, has become a valued part of the field by showing significant positive relationships with many job attitudes and work outcomes, such as job satisfaction, performance, and organizational citizenship behaviors (Bhargava & Baral, 2009; Odle-Dusseau, Britt, & Greene-Shortridge, 2012; Carlson et al., 2011). Thus, examining work-family enrichment with the criterion of employee creativity strengthens its construct validity, as well as provides new information to organizational leaders and scholars regarding the value of balancing multiple roles as derived from the role accumulation perspective. It was found in the present research that work-to-family enrichment shares a positive relationship with creativity, which means that by participating in work, employees are gaining experiences and emotions that help them in their non-work life as well, which related to more idea generation at work.

As opposed to the loss in psychological resources characterized by work-family conflict, work-to-family enrichment enhances resources, which is why employees are more likely to generate novel ideas (Greenhaus & Powell, 2006; Marks, 1977). Although non-work stressors were not found to affect creativity, the significant relationship between work-to-family enrichment and creativity indicates that the non-work domain does have an influence on

creativity within an organization, but again, in a more indirect fashion. The positive effects of work-to-family enrichment on creativity inform and extend several theories including boundary theory, affective events theory, and conservation of resources theory.

In boundary theory, "individuals create and maintain boundaries as a means of simplifying and ordering their environment", often constructing various social domains (i.e., work, home, school; Ashforth, Kreiner, & Fugate, 2000, p. 474). Boundaries are further shaped by the roles one holds in each domain, and the preferences for segmenting or integrating those various roles. The degree to which an individual prefers and is able to segment or integrate their roles has been shown to contribute to work-family conflict, psychological distress, and turnover intentions (Kossek Lautsch, & Eaton, 2006; Matthews, Barnes-Farrell, & Bulger, 2010). Based on the present findings from Study 2, it appears that integrating work and non-work domains can impact employee creativity when it occurs as work-family enrichment. To date, work-to-family enrichment has not been investigated in relation to boundary theory, which provides a new avenue of future research given the results seen here.

The relationship between work-family enrichment and creativity also extends affective events theory. Affective events theory (AET) proposes that an individual's feelings and affect regarding workplace events play a large role in their subsequent attitudes and behaviors (Weiss & Cropanzano, 1996). Thus, when an employee has positive experiences at work, work-family enrichment occurs when those positive emotions are carried over to the non-work domain. This positive spillover of affect across domains has been shown to improve job performance and job satisfaction in previous research by Carlson et al. (2011). The present dissertation extends AET by finding that the effect of work-to-family enrichment also positively influences creativity. Although positive mood was not specifically tested as a mediator of this relationship, AET

would suggest that work events that support non-work activities create positive affect, which results in an improvement in creativity. Additional research is needed to test this, as well as other potential mechanisms that may explain the relationship between work-to-family enrichment and creativity.

The final and most central theory to this dissertation in which the relationship between work-to-family enrichment and creativity supports is Hobfoll's COR theory (1989). Specifically, Hobfoll suggests that obtaining resources (e.g., the positive feelings that carry from work into non-work) aids in the creation of more available resources (e.g., enhanced cognitive ability, positive mood), a phenomenon called resource gain spirals (Hobfoll, 2001), which generally result in positive work outcomes, one of which being the ability to generate new ideas. Whereas claims based in theory such as this are typically the extent of result interpretation and discussion, in the present dissertation, the relationship between work-to-family enrichment and work resources was actually empirically validated. The assessment of work and non-work resources at two time points is a strength of this project which provides additional insight and support to both the findings and the theory from which they originate.

Testing the Gain and Loss of Resources

COR (conservation of resources) theory is one of the prominent rationales used in work-family research given its ability to explain the relationships between organizational and supervisory work-family support, work-family conflict and enrichment, and a continuum of work outcomes. However, most researchers who cite COR theory do not include a measure of psychological resources in their studies, instead simply referencing its presence and effect. This lack of theory testing may be a result of limited access to longitudinal data or a dearth in the

measurement of resource gain and loss.

Recently, a scale was designed by Chen and Powell (2012) to address the latter issue. To date, it appears that this scale has only been used in the studies published by Chen and colleagues (2012, 2014), so its use in the present dissertation provides additional evidence of its psychometric properties and contribution to the work-family interface. Based on the findings from Study 2, non-work stressors negatively relate to both work and non-work resources, whereas the work stressors generally do not show a significant relationship with resources from either domain. Additionally, work-family conflict and work-family enrichment demonstrate the expected negative and positive relationships with resources, respectively. Therefore, it appears that the resource gain and loss scale developed by Chen and Powell (2012) may be more adept at capturing resource dynamics from the non-work domain. Looking at the previous two studies using the scale, work role engagement is the only work-based construct assessed, indicating an opportunity for future research to take a deeper look into how resource gain and loss, as measured by the present scale and future alternative measures, relates to additional work attitudes and experiences. Nevertheless, these findings provide evidence that employees do see a loss of resources as a result of non-work stressors, but can potentially gain resources through work-to-family enrichment, which was shown to relate to more idea generation. Despite the lack of a direct relationship between non-work variables and creativity, there is still support for continued research and consideration of the relationship.

Limitations and Future Directions

Through this dissertation, I am able to offer several new avenues of research in the creativity and work-family literature. Additionally, many of the limitations of the present project produce various opportunities for future investigations. As with most studies of creativity, the

measurement of creativity is always a subject of contention given its often subjective nature and broad scope. Regarding the former, most researchers aim to collect some form of objective creativity data (i.e,, number of patents; Reiter-Palmon, Robinson-Morral, Kaufman, & Santo, 2012) or use supervisor and peer reports in order to control for common method bias, as well as self-report bias, which creativity is seen as easily susceptible to (Crampton & Wagner, 1994). However, given that employees are most aware of their own creative ideas, some researchers argue that creativity is best evaluated by the employee, since supervisors or coworkers may not be privy to the novel ideas an employee is generating (Janssen, 2000; Shalley, Gilson, & Blum, 2009).

As such, the present two studies employed a self-report scale to assess creativity, but as a form of validation, coworkers were also asked to complete a supplementary survey to report on the respondent's creativity. Although the sample of coworkers was small, the self-report and coworker-report measures of idea generation correlated highly. It is likely that with a larger sample of coworkers many of the antecedents would show significant prediction of creativity through both coworker and self-report, providing additional support for the use of self-report in creativity research. Thus, the present measurement of creativity appears to have been both reliable and valid, and though it may hold some common method bias, it does not warrant concern. Nevertheless, future research on the relationship between stressors and idea generation would benefit from the addition of a non-self-report measure, whether it be archival or from a supervisor. This would greatly improve the confidence in the current findings. Stressors and work-family constructs are implicitly subjective variables, so using subjective criterion is common and accepted in academia, but organizations and executives are less tolerant, often demanding the objective data they are used to when making business decisions (e.g., Lohr, 2011).

Thus, it behooves future researchers to test work and non-work stressors, as well as work-family conflict and enrichment, with as quantifiable a measure of creativity they have access to.

At the same time, creativity researchers must also be wary of the scope and dimensionality of their creativity measures. As discussed in the introduction, creativity was operationalized as idea generation in the present study, using previously tested items that asked respondents broadly about the generation of new and useful ideas at work. Given the wide range of occupations, it made sense to keep the items broad and allow respondents to interpret them for their own work. This may have been difficult for respondents with jobs that are not apparently creative in nature. However, the instructions were phrased in such a way to convey it is possible for most occupations to be creative in some way, in order to get respondents to think deeply about their creative activities. Additionally, the idea generation scale significantly correlated with an item that specifically asked if creativity was part of their job requirements, indicating that people who generated new ideas at work were also more likely to be required to do so. A non-significant correlation would have been a cause for concern and meant the creativity scale was not accurately capturing idea generation.

Nevertheless, the breadth of the scale does prevent researchers from knowing exactly the conditions for creativity. It would be advisable to tailor creativity scales to a specific occupation or task when possible to deepen the understanding of how antecedents affect creativity. Additionally, rather than assessing the stressors separately from idea generation, future researchers may want to adapt creativity scales to include the factor of time pressure or work overload. For example, instead of just asking a respondent's agreement with "I thought of new ideas", the following stem could be added: "When under a high degree of time pressure (or work overload), I was able to think of new ideas." Although this would provide further insight into the

impact of stress on creativity, especially for workers who are required to be creative, it would require researchers to carefully consider the appropriate antecedents for such analyses.

Common method bias is another limitation in the present dissertation considering Study 1 is purely self-report, and while Study 2 has the peer reports of coworkers on certain measures, analyses were primarily conducted with the self-report measures. Additionally, respondents were given the same survey to take at T2, which may have resulted in inflated correlations at T2. However, the second survey was sent out approximately one month after the first. Furthermore, the correlations between T1 and T2 measures, although all highly correlated, do not raise a cause for concern about collinearity, with the highest correlation reported as .77. That said, future research would benefit from a more diverse approach to data collection. At the very least, focal measures could be randomized on the T2 survey or replaced with alternative measures of the constructs. Researchers may also be able to access archival data on employee creativity and performance, or supervisor reports, depending on their sample.

Turning now to further discussion of future research that would confirm and extend the present findings, an alternative causal relationship is introduced. In the present research, stressors from the work and non-work domains were predicted to influence employee creativity, but arguments have been made to support the reverse, where engaging in creative work results in more work demands and possible stress (Schieman & Young, 2009). This may be a result of the boundary-spanning nature of creativity, which allows individuals to think and possibly even work at all hours of the day. When Schieman and Young (2009) tested creativity as an antecedent, they found creative work positively related to work demands, boundary spanning thoughts and demands, and multitasking between work and family. In other words, individuals who engaged in creative work reported demanding work that often crossed over into their non-

work lives and resulted in them multitasking between domains. Given the study was cross-sectional, longitudinal data is necessary to confirm their findings. Based on the present data, idea generation at T1 results in higher work demands, work overload, and work role conflict at T2. Pairing the alternative proposition that creativity leads to more work stressors with the confirmed hypothesis that challenge-based work stressors promote creativity, it appears that certain work stressors and creativity may share a recursive relationship. Additional longitudinal research should be conducted to further investigate the causal nature of this relationship, but it is clear that an important connection exists between work-based stressors and idea generation.

Regardless of whether creativity is studied as an antecedent or outcome, future researchers are also recommended to consider how creativity factors into a person's work requirements. Some occupations, such as marketing or playwright, require creativity to be successful (i.e., in-role performance), whereas other jobs do not need to be creative to perform well. Therefore, when individuals in the latter type of jobs generate novel ideas, it is considered more of an organizational citizenship behavior, or an extra-role activity that aids the company (Organ, 1988). Previous research has shown that results may differ depending on whether creative performance behaviors are expected or unexpected within a job (Tierney & Farmer, 2002). It appears that prior experience, knowledge, and abilities enhance in-role creative performance behaviors, whereas more motivational aspects, such as feeling empowered and having control, are involved in the occurrence of extra-role creativity behaviors (e.g., Alge, Ballinger, Tangirala, & Oakley, 2006; Axtell et al., 2000; Gong, Cheung, Wang, & Huang, 2012). Therefore, the relationship between stressors and creativity may vary depending on how creative one must be on the job. Specifically, it may be that workers not required to be creative will reduce their creative output when stressors are present. On the other hand, respondents with

creativity built into their job description are less likely to let external constraints affect their idea generation given its relationship to their job performance. Despite its obvious connection to the creativity of employees, creative job requirement is often a neglected construct, as researchers tend to focus specifically on other work factors as predictors of creativity (i.e., leadership, empowerment, time demands; Unsworth, Wall, & Carter, 2005). Thus, as studies find significant relationships between work stressors and employee creativity, including the present two studies, the requirement of creativity should be included as a moderator, mediator, or control variable in future investigations.

Finally, it is highly recommended that work-family researchers, as well as other scholars who frequently call upon conservation of resources (COR) theory to support their research, begin to include and further develop measures of work and non-work resources. Not only will it enhance the interpretation of future findings, but add to theory development and testing in work-family literature, which is often criticized due a lack of this (Eby et al., 2005). The present investigation of perceived resources found that mainly only non-work stressors had a significant negative effect work and non-work resources, indicating a need for future research to reexamine the influence of work stressors.

Conclusion

With this dissertation, several contributions are offered to the work-family and creativity literature, the first of which being the integration of the two fields. The overall goal of this research was to investigate how a person's social environment, specifically work and non-work stressors, impacted their creativity at work. Through two studies, work-related stressors were found to positively relate to idea generation, adding to the ongoing discussion regarding stress' effect on creativity. Although the challenge-hindrance stressor framework did not interact with the componential model of creativity as proposed, it appears that intrinsic motivation may be the underlying mechanism through which certain stressors at work improve creativity. This dissertation also contributes as one of the first known examinations of the relationship between non-work stressors and creativity, demonstrating that demands from outside of the workplace do not necessarily have a direct effect on creativity, but instead work through and are influenced by other variables (e.g., work-to-family enrichment). This opens up the work-family interface to additional investigations of creativity as an outcome, as well as a potential antecedent or moderator. Overall, the findings of this dissertation provide insight to organizational leaders who are interested in maximizing the creativity of their workforce by considering the work and non-work stress of their employees.

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Appendix A: Survey Scales

Idea Generation

Participant Instructions: Although it is common for people to associate creativity with occupations like artist, writer, and musician, workers from all occupations are likely to come up with new ideas within their job that might benefit their work, themselves, or others. Thinking about the *past month* at work, please rate the following items.

1. I thought of new ideas.
2. I had ideas about how things at work might be improved.
3. I found new ways to accomplish my work.
4. I had new ideas on how to improve my work.
5. I had new ideas that could be beneficial for my organization.

Scale. 1 = Not true at all, 2 = Slightly true, 3 = Somewhat true, 4 = Largely true, 5 = Very true

Creativity-relevant Skills – Creative Personality Scale

Participant Instructions: Please indicate which of the following adjectives best describe yourself. Check all that apply.

_____ Capable	_____ Honest
_____ Artificial	_____ Intelligent
_____ Clever	_____ Well-mannered
_____ Cautious	_____ Wide interests
_____ Confident	_____ Inventive
_____ Egotistical	_____ Original
_____ Commonplace	_____ Narrow interests
_____ Humorous	_____ Reflective
_____ Conservative	_____ Sincere
_____ Individualistic	_____ Resourceful
_____ Conventional	_____ Self-confident
_____ Informal	_____ Sexy
_____ Dissatisfied	_____ Submissive
_____ Insightful	_____ Snobbish
_____ Suspicious	_____ Unconventional

Intrinsic Motivation

Participation Instructions: Using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are presently involved in your work or job.

1. Because I derive much pleasure from learning new things.
2. For the satisfaction I experience from taking on interesting challenges.
3. For the satisfaction I experience when I am successful at doing difficult tasks.

Scale. 1 = Does not correspond at all, 3 = Corresponds moderately, 7 = Corresponds exactly

Time Pressure

Participant Instructions: A person's work sometimes involves working under time pressures exerted by other people and yourself (results are needed urgently, there are deadlines to be met, etc). Which of the following amounts of time pressure best characterizes your work life over the *past month*?

Scale. 1= Relaxed, no pressure at all, 2 = Occasional pressure, 3 = Moderate pressure, 4 = High pressure, 5 = Extreme pressure, I always feel behind

Participant Instructions: Now thinking about your non-work roles (i.e., spouse, parent, volunteer, church member, etc), which of the following amounts of time pressure best characterizes your non-work life over the *past month*?

Scale. 1= Relaxed, no pressure at all, 2 = Occasional pressure, 3 = Moderate pressure, 4 = High pressure, 5 = Extreme pressure, I always feel behind

Role Demand

Participant Instructions: Thinking about the *past month,* to what extent do you agree or disagree with the following items?

Work Role Demand

1. My job requires all of my attention.
2. I feel like I have a lot of work demands.
3. I feel like I have a lot to do at work.
4. My work requires a lot from me.
5. I am given a lot of work to do.

Non-work Role Demand

6. I have to work hard on personal and family-related activities.
7. My family and non-work activities require all of my attention.
8. I feel like I have a lot of family and non-work demands.
9. I have a lot of responsibility in my family and other non-work roles.

Scale. 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree

Role Conflict

Participant Instructions: Thinking about the *past month* at work, to what extent do you agree or disagree with the following items?

Work Role Conflict

1. I have to do things that should be done differently.
2. I receive incompatible requests from two or more people.
3. I do things that are apt to be accepted by one person and not accepted by others.

Participant Instructions: Now thinking about your family and other non-work roles over the *past month*, to what extent do you agree or disagree with the following items?

Non-work Role Conflict

1. I have to do things that should be done differently.
2. I receive incompatible requests from two or more people.
3. I do things that are apt to be accepted by one person and not accepted by others.

Scale. 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree

Role Overload

Participant Instructions: Thinking about the *past month*, how often do you experience the following in your work role?

Work Role Overload

1. I have to do things that I do not really have the time and energy for.
2. I need more hours in the day to do all the things that are expected of me.
3. I cannot ever seem to catch up.
4. I do not ever seem to have any time for myself.
5. There are times when I cannot meet everyone's expectations.

Participant Instructions: Thinking about the *past month*, how often do you experience the following in your non-work role(s)?

Non-work Role Overload

1. I have to do things that I do not really have the time and energy for.
2. I need more hours in the day to do all the things that are expected of me.
3. I cannot ever seem to catch up.
4. I do not ever seem to have any time for myself.
5. There are times when I cannot meet everyone's expectations.

Scale. 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Usually, 6 = Always

Work-Family Conflict

Participant Instructions: People who work and have families, partners, and other non-work responsibilities sometimes find that their job and home-life interfere with each other. How often did you experience each of these situations in the *past month*?

How often did your...

Work-to-Family Conflict

1. job or career interfere with your responsibilities at home, such as yard work, cooking, cleaning, repairs, shopping, paying the bills, or child care?
2. job or career keep you from spending the amount of time you would like to spend with your family and friends?
3. job or career interfere with your home-life?

Family-to-Work Conflict

1. home-life interfere with your responsibilities at work, such as getting to work on time, accomplishing daily tasks, or working overtime?
2. home-life keep you from spending the amount of time you would like to spend on job or career-related activities?
3. home-life interfere with your job or career?

Scale. 1 = Never, 2 = Less than once a month, 3 = 1-3 days a month, 4 = 1-2 days a week, 5 = 3-4 days a week, 6 = 5 or more days a week

Work-Family Enrichment

Participant Instructions: Thinking about the *past month*, to what extent do you agree or disagree with the following items?

Work-to-Family Enrichment

My involvement in my work…

1. Helps me to understand different viewpoints and this helps me to be a better family member.
2. Makes me feel happy and this helps me be a better family member.
3. Helps me feel personally fulfilled and this helps me be a better family member.

Family-to-Work Enrichment

My involvement in my family and other non-work roles…

1. Helps me acquire skills and this helps me be a better worker.
2. Puts me in a good mood and this helps me be a better worker.
3. Encourages me to use my work time in a focused manner and this help me be a better worker.

Scale. 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree

Work-related Resource Gain and Loss

Participant Instructions: Below is a list of resources a person might find beneficial to their work life.

For each item, please rate the extent to which you felt a loss or gain at work over the *past month*.

1. Satisfaction with myself
2. Feeling that my work life is peaceful
3. Coping skills
4. Influence over others
5. Help with tasks
6. Support from others
7. Personal health
8. Hope
9. Useful information and advice from others
10. Cognitive skills
11. Control over my life
12. Interpersonal skills
13. Capability of coping with most of my problems
14. The ability to complete tasks successfully
15. Knowledge and wisdom
16. Multitasking skill
17. Optimism
18. Competence
19. Self-worth
20. Adequate rest
21. Confidence to be successful

Scale. -3 = A great deal of loss, -2 = Some loss, -1 = Very little lost, 0 = No change, 1 = Very little gain, 2 = Some gain, 3 = A great deal of gain

Non-work-related Resource Gain and Loss

Participant Instructions: Below is a list of resources a person might find beneficial to their non-work life.

For each item, please rate the extent to which you felt a loss or gain in your non-work role(s) over the *past month*.

1. Satisfaction with myself
2. Feeling that my work life is peaceful
3. Coping skills
4. Influence over others
5. Help with tasks
6. Support from others
7. Personal health
8. Hope
9. Useful information and advice from others
10. Cognitive skills
11. Control over my life
12. Interpersonal skills
13. Capability of coping with most of my problems
14. The ability to complete tasks successfully
15. Knowledge and wisdom
16. Multitasking skill
17. Optimism
18. Competence
19. Self-worth
20. Adequate rest
21. Confidence to be successful

Appendix B: Institutional Review Board Approval

Application for Exemption from Institutional Oversight

Institutional Review Board
Dr. Robert Mathews, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/ projects using living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

– Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-F, listed below, when submitting to the IRB. Once the application is completed, please the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at http://sites01.lsu.edu/wp/ored/human-subjects-screening-committee-members/

– A Complete Application Includes All of the Following:
(A) A copy of this completed form and a copy of parts B thru F.
(B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1&2)
(C) Copies of all instruments to be used.
*If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
(D) The consent form that you will use in the study (see part 3 for more information.)
(E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB. Training link: (http://phrp.nihtraining.com/users/login.php)
(F) IRB Security of Data Agreement: (https://sites01.lsu.edu/wp/ored/files/2013/07/Security-of-Data-Agreement.pdf)

1) Principal Investigator: Rachel Trout **Rank:** Graduate Student

Dept: Psychology **Ph:** 601-818-7914 **E-mail:** rtrout2@tigers.lsu.edu

2) Co Investigator(s): please include department, rank, phone and e-mail for each
*If student, please identify and name supervising professor in this space
Jason Hicks, Psychology, Professor, 225-578-4109, jhicks@lsu.edu

IRB# E8711 LSU Proposal #
✓ Complete Application
✓ Human Subjects Training
✓ IRB Security of Data Agreement

3) Project Title: The Effect of Work and Non-Work Stressors on Employee Creativity

STUDY EXEMPTED BY:
Dr. Robert C. Mathews, Chairman
Institutional Review Board
Louisiana State University
130 David Boyd Hall
225-578-8692 / www.lsu.edu/irb
Exemption Expires: 3/10/2017

4) Proposal? (yes or no) no **If Yes, LSU Proposal Number**

Also, if YES, either ◯ **This application completely matches the scope of work in the grant**
OR ◯ **More IRB Applications will be filed later**

5) Subject pool (e.g. Psychology students) adult workers recruited through Amazon mturk

*Circle any **"vulnerable populations" to be used**: (children <18; the mentally impaired, pregnant women, the ages, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature Rachel Trout Rachel Trout **Date** 3/7/14 (no per signatures)

**** I certify my responses are accurate and complete.** If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Screening Committee Action: Exempted X Not Exempted ____ Category/Paragraph 2b

Signed Consent Waived? (Yes) / No

Reviewer Alex Cohen, Ph.D **Signature** [signature] **Date** 3-11-14

Application for Exemption from Institutional Oversight

Institutional Review Board
Dr. Robert Mathews, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/ projects using living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This Form helps the PI determine if a project may be exempted, and is used to request an exemption.

– Applicant, Please fill out the application in its entirety and include the completed application as well as parts A-F, listed below, when submitting to the IRB. Once the application is completed, please the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at http://sites01.lsu.edu/wp/ored/human-subjects-screening-committee-members/

– A Complete Application Includes All of the Following:
(A) A copy of this completed form and a copy of parts B thru F.
(B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1&2)
(C) Copies of all instruments to be used.
*If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
(D) The consent form that you will use in the study (see part 3 for more information.)
(E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB. Training link: (http://phrp.nihtraining.com/users/login.php)
(F) IRB Security of Data Agreement: (https://sites01.lsu.edu/wp/ored/files/2013/07/Security-of-Data-Agreement.pdf)

1) Principal Investigator: Rachel Trout **Rank:** Graduate Student

Dept: Psychology **Ph:** 601-818-7914 **E-mail:** rtrout2@tigers.lsu.edu

2) Co Investigator(s): please include department, rank, phone and e-mail for each
*If student, please identify and name supervising professor in this space
Jason Hicks, Psychology, Professor, 225-578-4109, jhicks@lsu.edu

IRB# E8726 LSU Proposal #_____
☑ Complete Application
☑ Human Subjects Training
☑ IRB Security of Data Agreement

3) Project Title: The Mediating Effect of Work-Family Conflict and Enrichment on Employee Creativity

STUDY EXEMPTED BY:
Dr. Robert C. Mathews, Chairman
Institutional Review Board
Louisiana State University
130 David Boyd Hall
225-578-8692 / www.lsu.edu/irb
Exemption Expires: 3/18/2017

4) Proposal? (yes or no) no **If Yes, LSU Proposal Number**

Also, if YES, either ◯ **This application completely matches the scope of work in the grant**
OR ◯ **More IRB Applications will be filed later**

5) Subject pool (e.g. Psychology students) Adult workers in the business services, research, & education industries

*Circle any **"vulnerable populations" to be used**: (children <18, the mentally impaired, pregnant women, the ages, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature Rachel Trout **Date** 3/12/14 (no per signatures)

**** I certify my responses are accurate and complete.** If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Screening Committee Action: Exempted X Not Exempted ____ Category/Paragraph 1b

Signed Consent Waived?: Yes / No

Reviewer Alex Gates, MD **Signature** _____ **Date** 3-19-14

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Robert Mathews, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

TO: Rachel Trout
Psychology

FROM: Robert C. Mathews
Chair, Institutional Review Board

DATE: April 10, 2014

RE: **IRB#** E8726
TITLE: The Mediating Effect of Work-Family Conflict and Enrichment on Employee Creativity

New Protocol/Modification/Continuation: Modification

Brief Modification Description: Adding surveys for respondents" coworkers.

Review date: 4/10/2014

Approved X **Disapproved** _____

Approval Date: 4/10/2014 **Approval Expiration Date:** 3/18/2017

Re-review frequency: (three years unless otherwise stated)

Protocol Matches Scope of Work in Grant proposal: (if applicable) _____

By: Robert C. Mathews, Chairman 

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. SPECIAL NOTE:

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

Appendix C: Additional Tables

H1: Multiple Regression Predicting Idea Generation

Variables	Step 1	Step 2
Gender	.13*	.06
Organizational Tenure		.17**
CPS		.29**
Intrinsic Motivation		.43**
R^2	0.02	.36
ΔR^2	0.02*	.34**

Note. N = 320. CPS = Creative Personality Scale. *p < .05; **p < .01

H2a: Work Challenge Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.13*	.13*
OT		.17**	.16**
WD		.31**	.31**
OTxWD			-.08
R^2	0.02	.14	.15
ΔR^2	0.02*	.12**	.01

Note. N = 321. OT = Organizational Tenure. WD = Work Demand. *p < .05; **p < .01

H2a: Non-work Challenge Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.14*	.14*
OT		.16**	.15**
NWD		.09	.09
OTxNWD			-.06
R^2	0.02	.05	.05
ΔR^2	0.02*	.03**	.00

Note. N = 321. OT = Organizational Tenure. NWD = Non-work Demand. *p < .05; **p < .01

H2a: Work Challenge Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.14*	.14*
OT		.15**	.15**
WTP		.19**	.19**
OTxWTP			-.01
R^2	0.02	.08	.08
ΔR^2	0.02*	.06**	.00

Note. N = 321. OT = Organizational Tenure. WTP = Work Time Pressure. *p < .05; **p < .01

H2a: Non-work Challenge Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.13*	.13*
OT		.16**	.36**
NTP		-.06	-.05
OTxNTP			-.05
R^2	0.02	.05	.05
ΔR^2	0.02*	.03**	.00

Note. N = 321. OT = Organizational Tenure. NTP = Non-work Time Pressure. *p < .05; **p < .01

H2b:Work Challenge Stressor x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.08	.08
CPS		.37**	.37**
WD		.29**	.29**
CPSxWD			-.02
R^2	0.02	0.24	0.23
ΔR^2	0.02*	0.23**	.00

Note. N = 320. CPS = Creative Personality Scale. WD = Work Demand. *p < .05; **p < .01

H2b:Non-work Challenge Stressor x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.08	.08
CPS		.39**	.39**
NWD		.11*	.11*
CPSxNWD			.05
R^2	0.02	.17	.17
ΔR^2	0.02*	.15**	.00

Note. N = 320. CPS = Creative Personality Scale. NWD = Non-work Demand. *p < .05; **p < .01

H2b Work Challenge Stressor x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.08	.09
CPS		.37**	.36**
WTP		.17**	.16**
CPSxWTP			-.07
R^2	0.02	.19	.19
ΔR^2	0.02*	.17**	.01

Note. N = 320. CPS = Creative Personality Scale. WTP = Work Time Pressure. *p < .05; **p < .01

H2b: Non-work Challenge Stressor x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.08	.07
CPS		.38**	.36**
NTP		-.02	-.02
CPSxNTP			.03
R^2	0.02	.16	.16
ΔR^2	0.02*	.14**	.00

Note. N = 320. CPS = Creative Personality Scale. NTP = Non-work Time Pressure. *p < .05; **p < .01

Tests of H2c and H3c: Intrinsic Motivation Mediating Effects on Idea Generation

	Step 1	Step 2	Step 3	Step 4
Predictor to outcome	Direct effect	Predictor to mediator	Mediator to outcome	Mediating effect of intrinsic motivation
WD to IG	β =.30**	β =.27**	β =.49**	ME: β =.19**, z = 4.49**
WTP to IG	β =.19**	β =.14**	β =.49**	ME: β =.13**, z = 2.46*
NWD to IG	β =.08	β =.05	β =.49**	ME: β =-.04, ns
NTP to IG	β =-.04	β =-.15**	β =.49**	ME: β =.03, ns
WRC to IG	β =.10^	β =.09	β =.49**	ME: β =.06, ns
WO to IG	β =.15**	β =.04	β =.49**	ME: β =.13**, ns
NRC to IG	β =.02	β =-.02	β =.49**	ME: β =.03, ns
NO to IG	β =.01	β =-.12*	β =.49**	ME: β =.08, ns

Note. N = 320. Gender controlled in all analyses. ^p < .10; *p < .05; **p < .01

H3a: Work Hindrance Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.13*	.13*
OT		.17**	.16**
WRC		.11*	.11*
OTxWRC			-.02
R^2	0.02	.06	.06
ΔR^2	0.02*	.04**	.00

Note. N = 319. OT = Organizational Tenure. WRC = Work Role Conflict. *p < .05; **p < .01

H3a: Non-work Hindrance Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.13*	.14*
OT		.16**	.16**
NRC		.03	.02
OTxNRC			.04
R^2	0.02	.04	.05
ΔR^2	0.02*	.03*	.00

Note. N = 320. OT = Organizational Tenure. NRC = Non-work Role Conflict. *p < .05; **p < .01

H3a: Work Hindrance Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.15**	.15**
OT		.16**	.16**
WO		.15**	.15**
OTxWO			.01
R^2	0.02	.06	.06
ΔR^2	0.02*	.05**	.00

Note. N = 320. OT = Organizational Tenure. WO = Work Overload. *p < .05; **p < .01

H3a: Non-work Hindrance Stressors x OT Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.14*	.09
OT		.16**	.16**
NWO		.00	-.00
OTxNWO			.05
R^2	0.02	.04	.05
ΔR^2	0.02*	.03*	.00

Note. N = 321. OT = Organizational Tenure. NWO = Non-work Overload. *p < .05; **p < .01

H3b: Work Hindrance Stressors x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.07	.07
CPS		.38**	.38**
WRC		.10*	.10*
CPSxWRC			-.03
R^2	0.02	.17	.17
ΔR^2	0.02*	.15**	.00

Note. N = 320. CPS = Creative Personality Scale. WRC = Work Role Conflict. *p < .05; **p < .01

H3b: Non-work Hindrance Stressors x CPS Moderations Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.07	.07
CPS		.38**	.38**
NRC		.06	.06
CPSxNRC			-.02
R^2	0.02	.16	.16
ΔR^2	0.02*	.14**	.00

Note. N = 320. CPS = Creative Personality Scale. NRC = Non-work Role Conflict. *p < .05; **p < .01

H3b: Work Hindrance Stressors x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.09	.09
CPS		.39**	.39**
WO		.17**	.17**
CPSxWO			-.01
R^2	0.02	.19	.19
ΔR^2	0.02*	.17**	.00

Note. N = 320. CPS = Creative Personality Scale. WO = Work Overload. *p < .05; **p < .01

H3b: Non-work Hindrance Stressors x CPS Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.09	.09
CPS		.38**	.38**
NWO		.05	.05
CPSxNWO			-.04
R^2	0.02	.16	.16
ΔR^2	0.02*	.14**	.00

Note. N = 320. CPS = Creative Personality Scale. NWO = Non-work Overload. *p < .05; **p < .01

Curvilinear Analysis for IG

Variables	Step 1	Step 2
WD	.30**	0.04
WD_SQ		0.27
R^2	.09	.09
ΔR^2	.09**	.00

Note. N = 323. *p < .05; **p < .01

Curvilinear Analysis for IG

Variables	Step 1	Step 2
NWD	0.08	-0.07
NWD_SQ		0.15
R^2	.01	.01
ΔR^2	.01	.00

Note. N = 323. *p < .05; **p < .01

Table 21b. Curvilinear Analysis for IG

Variables	Step 1	Step 2
WTP	.19**	.62*
WTP_SQ		-0.44
R^2	.04	.04
ΔR^2	.04**	.01

Note. N = 323. *p < .05; **p < .01

Table 21d. Curvilinear Analysis for IG

Variables	Step 1	Step 2
NTP	-0.05	0.04
NTP_SQ		-0.09
R^2	.00	.00
ΔR^2	.00	.00

Note. N = 323. *p < .05; **p < .01

Curvilinear Analysis for IG

Variables	Step 1	Step 2
WRC	0.11	-0.32
WRC_SQ		0.43
R^2	.01	.02
ΔR^2	.01	.01

Note. N = 323. *p < .05; **p < .01

Curvilinear Analysis for IG

Variables	Step 1	Step 2
NRC	0.03	-0.38
NRC_SQ		0.41
R^2	.00	.01
ΔR^2	.00	.01

Note. N = 323. *p < .05; **p < .01

Table 22b. Curvilinear Analysis for IG

Variables	Step 1	Step 2
WO	.13*	-0.09
WO_SQ		0.22
R^2	.02	.02
ΔR^2	.02*	.00

Note. N = 323. *p < .05; **p < .01

Table 22d. Curvilinear Analysis for IG

Variables	Step 1	Step 2
NO	-0.02	-0.14
NO_SQ		0.12
R^2	.00	.00
ΔR^2	.00	.00

Note. N = 323. *p < .05; **p < .01

H2a with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
WRC	.06	.09	.09
WO	.10	-.09	-.09
OT		.17**	.17**
WD		.33**	.33**
OTxWD			-.08
R^2	0.02	.13	.13
ΔR^2	0.02*	.11**	.01

Note. N = 321. OT = Organizational Tenure. WD = Work Demand. *p < .05; **p < .01

H2a with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
NRC	.04	.02	.03
NOW	-.03	-.08	-.09
OT		.17**	.16**
NWD		.11	.11
OTxNWD			-.06
R^2	.00	.04	.04
ΔR^2	.00	.04**	.00

Note. N = 321. OT = Organizational Tenure. NWD = Non-work Demand. *p < .05; **p < .01

H2a with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
WRC	.06	.05	.05
WO	.10	.01	.01
OT		.15**	.15**
WTP		.16*	.16*
OTxWTP			-.01
R^2	.02	.06	.06
ΔR^2	0.02*	.04**	.00

Note. N = 321. OT = Organizational Tenure. WTP = Work Time Pressure. *p < .05; **p < .01

H2a with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
NRC	.04	.06	.06
NOW	-.03	.00	.00
OT		.17**	.17**
NTP		-.09	-.08
OTxNTP			-.06
R^2	.00	.03	.04
ΔR^2	.00	.03**	.00

Note. N = 321. OT = Organizational Tenure. NTP = Non-work Time Pressure. *p < .05; **p < .01

H3a with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
WD	.29**	.30**	.30**
WTP	.03	-.01	-.01
OT		.17**	.17**
WRC		.06	.06
OTxWRC			-.02
R^2	.09	.12	.12
ΔR^2	.09**	.03**	.00

Note. N = 319. OT = Organizational Tenure. WRC = Work Role Conflict. *p < .05; **p < .01

H3a with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
NWD	.14*	.15*	.15*
NTP	-.12	-.15*	-.15*
OT		.18**	.18**
NRC		.02	.02
OTxNRC			.03
R^2	0.02	.05	.05
ΔR^2	0.02	.03**	.00

Note. N = 320. OT = Organizational Tenure. NRC = Non-work Role Conflict. *p < .05; **p < .01

H3a with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
WD	.29**	.32**	.32**
WTP	.03	.04	.04
OT		.17**	.17
WO		-.06	-.06
OTxWO			-.01
R^2	.09	.12	.12
ΔR^2	.09**	.03**	.00

Note. N = 320. OT = Organizational Tenure. WO = Work Overload. *p < .05; **p < .01

H3a with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
NWD	.14*	.16*	.17*
NTP	-.12	-.14*	-.14*
OT		.18**	.17*
NWO		-.02	-.03
OTxNWO			.06
R^2	0.02	.05	.05
ΔR^2	0.02	.03*	.00

Note. N = 321. OT = Organizational Tenure. NWO = Non-work Overload. *p < .05; **p < .01

H2b with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
WRC	0.06	0.05	0.05
WO	.10	-.02	-.02
CPS		.38**	.38**
WD		.29**	.29**
CPSxWD			-.01
R^2	.02	.24	.24
ΔR^2	0.02*	0.22**	.00

Note. N = 320. CPS = Creative Personality Scale. WD = Work Demand. *p < .05; **p < .01

H2b with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
NRC	0.04	0.03	0.03
NWO	-.03	-.03	-.03
CPS		.40**	.40**
NWD		.11	.11
CPSxNWD			.04
R^2	.001	.17	.17
ΔR^2	.001	.16**	.00

Note. N = 320. CPS = Creative Personality Scale. NWD = Non-work Demand. *p < .05; **p < .01

H2b with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
WRC	0.06	0.02	0.03
WO	.10	.09	.08
CPS		.39**	.38**
WTP		.10	.10
CPSxWTP			-.06
R^2	.02*	.19	.19
ΔR^2	0.02*	.17**	.00

Note. N = 320. CPS = Creative Personality Scale. WTP = Work Time Pressure. *p < .05; **p < .01

H2b with hindrance stressors as controls

Variable	Step 1	Step 2	Step 3
NRC	0.04	0.06	0.06
NWO	-.03	.05	.05
CPS		.40**	.40**
NTP		-.07	-.07
CPSxNTP			.04
R^2	.00	.16	.16
ΔR^2	.00	.16**	.00

Note. N = 320. CPS = Creative Personality Scale. NTP = Non-work Time Pressure. *p < .05; **p < .01

H3b with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
WD	.29**	.29**	.29**
WTP	.03	-.02	-.02
CPS		.38**	.38**
WRC		.05	.05
CPSxWRC			.01
R^2	.09	.24	.24
ΔR^2	.09**	.15**	.00

Note. N = 320. CPS = Creative Personality Scale. WRC = Work Role Conflict. *p < .05; **p < .01

H3b with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
NWD	.15*	.15*	.15*
NTP	-.13*	-.11	-.11
CPS		.40**	.40**
NRC		.04	.04
CPSxNRC			-.02
R^2	.02	.17	.17
ΔR^2	0.02*	.16**	.00

Note. N = 320. CPS = Creative Personality Scale. NRC = Non-work Role Conflict. *p < .05; **p < .01

H3b with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
WD	.28**	.29**	.29**
WTP	.03	-.01	-.01
CPS		.39**	.39**
WO		.02	.01
CPSxWO			-.01
R^2	.09	.24	.24
ΔR^2	.09**	.15**	.00

Note. N = 320. CPS = Creative Personality Scale. WO = Work Overload. *p < .05; **p < .01

H3b with challenge stressors as controls

Variable	Step 1	Step 2	Step 3
NWD	.15*	.15*	.15*
NTP	-.13*	-.11	-.12
CPS		.40**	.40**
NWO		.03	.03
CPSxNWO			-.04
R^2	0.02	.17	.17
ΔR^2	0.02*	.15**	.00

Note. N = 320. CPS = Creative Personality Scale. NWO = Non-work Overload. *p < .05; **p < .01

Tests of H2c and H3c with control variables (Intrinsic Motivation Mediating Effects on Idea Generation)

		Step 1	Step 2	Step 3	Step 4
Controls	Predictor to outcome	Direct effect	Predictor to Mediator	Mediator to Outcome	Intrinsic motivation mediating effect
WRC & WO	WD to IG	β =.33**	β =.36**	β =.49**	ME: β =.17**, z = 4.49*, p < .05
WRC & WO	WTP to IG	β =.18*	β =.18*	β =.49**	ME: β =.09, z = 2.46,* p < .05
NRC & NO	NWD to IG	β =.11	β =.13*	β =.50**	ME: β =.04, ns
NRC & NO	NTP to IG	β =-.07	β =-.12^	β =.50**	ME: β =.03, ns
WTP & WD	WRC to IG	β =.04	β =.04	β =.45**	ME: β =-.01, ns
WTP & WD	WO to IG	β =-.07	β =-.18*	β =.45**	ME: β =.01, ns
NTP & NWD	NRC to IG	β =.02	β =-.01	β =.49**	ME: β =.02, ns
NTP & NWD	NO to IG	β =-.02	β =-.12	β =.49**	ME: β =.04, ns

Note. N = 320. ^p < .10; *p < .05; **p < .01

Work Challenge Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.10*	.11*
IM		.44**	.44**
WD		.19**	.18**
IMxWD			-.05
R^2	0.02	.29	.29
ΔR^2	0.02*	.27**	.00

Note. N = 322. IM = Intrinsic Motivation. WD = Work Demand. *p < .05; **p < .01

Non-work Challenge Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.10*	.10*
IM		.49**	.49**
NWD		.06	.06
IMxNWD			-.06
R^2	0.02	.25	.25
ΔR^2	0.02*	.24**	.00

Note. N = 321. IM = Intrinsic Motivation. NWD = Non-work Demand. *p < .05; **p < .01

Work Challenge Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.11*	.10*
IM		.47**	.46**
WTP		.13**	.12*
IMxWTP			-.12*
R^2	0.02	.27	.29
ΔR^2	0.02*	.25**	.02*

Note. N = 321. IM = Intrinsic Motivation. WTP = Work Time Pressure. *p < .05; **p < .01

Non-work Challenge Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.10*	.10*
IM		.49**	.50**
NTP		.03	.02
IMxNTP			-.04
R^2	0.02	.25	.25
ΔR^2	0.02*	.24**	.00

Note. N = 321. IM = Intrinsic Motivation. NTP = Non-work Time Pressure. *p < .05; **p < .01

Work Hindrance Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.09	.09
IM		.48**	.47**
WRC		.06	.07
IMxWRC			-.05
R^2	0.02	.26	.26
ΔR^2	0.02*	.24**	.00

Note. N = 319. IM = Intrinsic Motivation. WRC = Work Role Conflict. *p < .05; **p < .01

Non-work Hindrance Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.10*	.10*
IM		.49**	.49**
NRC		.03	.03
IMxNRC			-.02
R^2	0.02	.25	.25
ΔR^2	0.02*	.24**	.00

Note. N = 321. IM = Intrinsic Motivation. NRC = Non-work Role Conflict. *p < .05; **p < .01

Work Hindrance Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.13*	.11*	.11*
IM		.48**	.47**
WO		.13**	.13**
IMxWO			-.10*
R^2	0.02	.27	.28
ΔR^2	0.02*	.25**	.01*

Note. N = 320. IM = Intrinsic Motivation. WO = Work Overload. *p < .05; **p < .01

Non-work Hindrance Stressors x IM Moderation Predicting Idea Generation

Variable	Step 1	Step 2	Step 3
Gender	.14*	.11*	.12*
IM		.50**	.51**
NWO		.08	.06
IMxNWO			-.13*
R^2	0.02	.26	.28
ΔR^2	0.02*	.24**	.02*

Note. N = 321. IM = Intrinsic Motivation. NWO = Non-work Overload. *p < .05; **p < .01

H4a: Regression Predicting IG at T1

Variable	Step 1	Step 2
WD	.29**	.28**
WTP	-.05	-.03
NWD		.11
NTP		-.03
R^2	.07	.08
ΔR^2	.07**	.01

Note. N = 227. ^p < .10; *p < .05; **p < .01

H4b: Regression Predicting IG at T1

Variable	Step 1	Step 2
WRC	.05	.06
WO	.13^	.09
NRC		-.07
NO		.10
R^2	.02	.03
ΔR^2	.02	.01

Note. N = 223. ^p < .10;*p < .05; **p < .01

H4a: Regression Predicting IG at T2

Variable	Step 1	Step 2
WD	.32^	.31^
WTP	.02	.02
NWD		-.14
NTP		-.03
R^2	.11	.13
ΔR^2	.11*	.03

Note. N = 64. ^p < .10; *p < .05; **p < .01

H4b: Regression Predicting IG at T2

Variable	Step 1	Step 2
WRC	.21	.25^
WO	.21	.24^
NRC		-.09
NO		-.16
R^2	.12	.17
ΔR^2	.12*	.04

Note. N = 64. ^p < .10; *p < .05; **p < .01

H5a: Regression Predicting WFC at T1

Variable	Step 1
WRC	.00
WO	.45**
R^2	.20
ΔR^2	.20**

Note. N = 223. *p < .05; **p < .01

H5a: Regression Predicting WFC at T2

Variable	Step 1
WRC	.21^
WO	.54**
R^2	.41
ΔR^2	.41**

Note. N = 59. ^p < .10; *p < .05; **p < .01

H5b: Regression Predicting FWC at T1

Variable	Step 1
NRC	.04
NO	.39**
R^2	.17
ΔR^2	.17**

Note. N = 224. *p < .05; **p < .01

H5b: Regression Predicting FWC at T2

Variable	Step 1
NRC	.36*
NO	.27^
R^2	.29
ΔR^2	.29**

Note. N = 59. ^p < .10; *p < .05; **p < .01

H6a: Regression Predicting WFE at T1

Variable	Step 1
WD	.16
WTP	-.09
R^2	.01
ΔR^2	.01

Note. $N = 223$. *$p < .05$; **$p < .01$

H6a: Regression Predicting WFE at T2

Variable	Step 1
WD	.47**
WTP	-.26
R^2	.12
ΔR^2	.12*

Note. $N = 59$. *$p < .05$; **$p < .01$

H6b: Regression Predicting FWE at T1

Variable	Step 1
NWD	.17^
NTP	-.17*
R^2	.02
ΔR^2	.02

Note. $N = 223$. ^p < .10; *$p < .05$; **$p < .01$

H6b: Regression Predicting FWE at T2

Variable	Step 1
NWD	-.11
NTP	-.08
R^2	.03
ΔR^2	.03

Note. $N = 59$. *$p < .05$; **$p < .01$

H7a-b: Regression Predicting IG at T1

Variable	Step 1
WFC	.08
FWC	.00
R^2	.01
ΔR^2	.01

Note. N = 227. *p < .05; **p < .01

H7a-b: Regression Predicting IG at T2

Variable	Step 1
WFC	.44**
FWC	-.03
R^2	.18
ΔR^2	.18**

Note. N = 64. *p < .05; **p < .01

H8a-b: Regression Predicting IG at T1

Variable	Step 1
WFE	.25**
FWE	-.03
R^2	.06
ΔR^2	.06**

Note. N = 226. *p < .05; **p < .01

H8a-b: Regression Predicting IG at T2

Variable	Step 1
WFE	-.25^
FWE	-.22
R^2	.06
ΔR^2	.06

Note. N = 64. ^p < .10; *p < .05; **p < .01

Mediational Tests of Work and Non-work Resources

	Step 1	Step 2	Step 3	Step 4
Predictor to outcome	Direct effect	Predictor to Mediator	Mediator to Outcome	Resources' mediating effect
WD to WR to WFE	β =.09^	β =.04	β =.30**	ME: β =.08, ns
WO to WR to WFC	β =.45**	β =-.09	β =-.13^	ME: β =.44**, ns
NO to NR to FWC	β =.41**	β =-.25**	β =-.14*	ME: β =.40**, z = 1.86, p = .06
WFE to NR to IG	β =.24**	β =.11	β =.07	ME: β =.23**, ns
WD to WFE to IG	β =.26**	β =.09^	β =.24**	ME: β =.23**, ns

Note. N = 223. ^p < .10; *p < .05; **p < .01

Alt H5a: Regression Predicting WFE

Variable	Step 1
WRC	-.09
WO	-.06
R^2	.01
ΔR^2	.01

Note. N = 223. *p < .05; **p < .01

Alt H6a: Regression Predicting WFC

Variable	Step 1
WD	.14
WTP	.23*
R^2	.12**
ΔR^2	.12**

Note. N = 223. *p < .05; **p < .01

Alt H5b: Regression Predicting FWE

Variable	Step 1
NRC	-.11
NO	-.15^
R^2	.05
ΔR^2	.05**

Note. N = 224. ^p < .10; *p < .05; **p < .01

Alt H6b: Regression Predicting FWC

Variable	Step 1
NWD	.28**
NTP	.07
R^2	.11
ΔR^2	.11**

Note. N = 223. *p < .05; **p < .01

Vita

Rachel Trout, a native of Petal, Mississippi, received her Bachelor's degree in Psychology from Rhodes College in 2010. Rachel earned a Master's degree in Industrial-Organizational Psychology from Louisiana State University in 2012. Her research pursuits include the work-family interface, occupational health, and work outcomes, such as employee engagement, well-being, and creativity. During her graduate career, Rachel held internships at Bright Horizons Family Solutions and Walmart. She currently resides in Hattiesburg, Mississippi with her husband, Matt Hill, and cat, Lola.